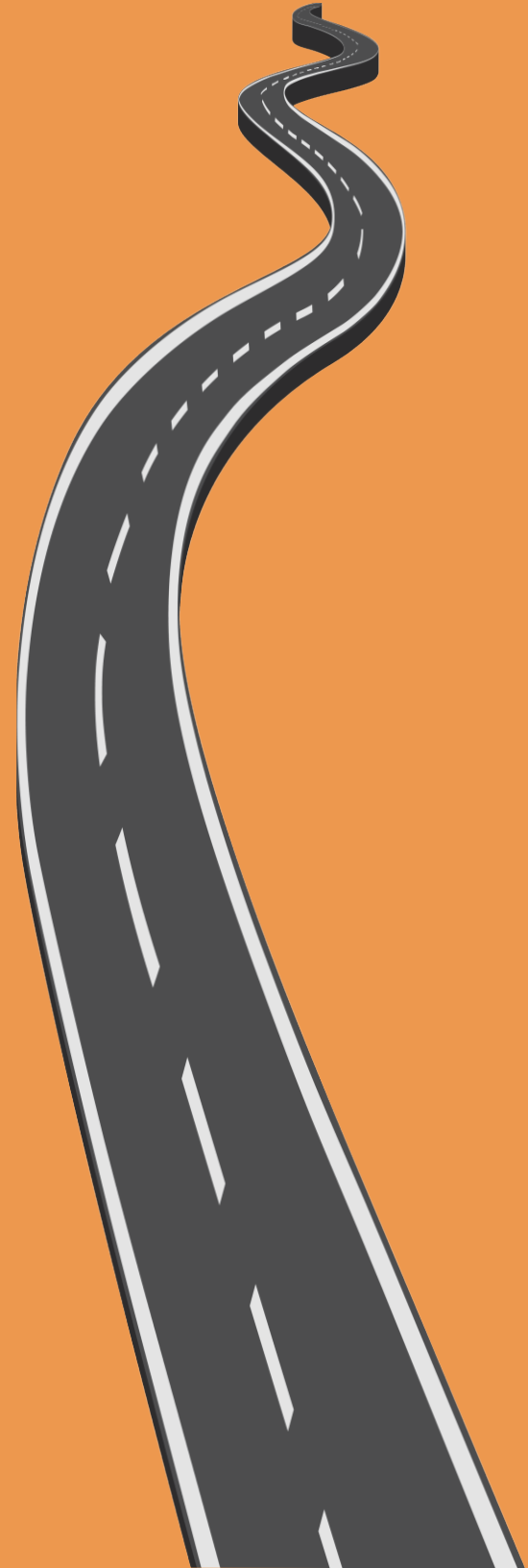


Lawrence County Multimodal



Corridor Study

November 2018



The preparation of the Lawrence County Multimodal Corridor Study was partially financed through the Southwestern Pennsylvania Commission (SPC) Smart Program-Livability Through Smart Transportation.

The study was prepared with assistance from:



Mackin Engineering Company
R.I.D.C. Park West
117 Industry Drive
Pittsburgh, PA 15275-1015
www.mackinengineering.com



Acknowledgments



The Lawrence County Multimodal Corridor Study was prepared on behalf of the Lawrence County Board of Commissioners, by the Department of Planning and Community Development, with the assistance of many groups, organizations and individuals.

In particular, the following persons deserve recognition for dedicating their time and efforts:

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Robert Del Signore, Sr.

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Kathy Abranovich, Hickory Township Supervisor

Ken Romig, Westminster College, Vice President for
Finance and Management Services

Tom Graney, New Wilmington Borough

Victor DeFazio, PennDOT District 11-0 Design
Services Engineer



Resolution

WHEREAS, the County of Lawrence has received a grant from the Pennsylvania Department of Transportation (PennDOT) to complete The Lawrence County Multimodal Corridor Study as an amendment to the Lawrence County Comprehensive plan that was adopted in 2016; and

WHEREAS, the Planning Commission of Lawrence County is the official advisory agent to the Board of Commissioners of Lawrence County on matters pertaining to the general planning of land use; and

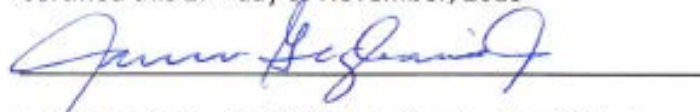
WHEREAS, the Lawrence County Planning Commission recommended at their November 14, 2018 Planning Commission meeting that the Board of Commissioners approve the Lawrence County Multimodal Corridor Study as an amendment to the County Comprehensive Plan "Focus Lawrence County" that was adopted in October of 2016.

NOW, THEREFORE IT BE RESOLVED BY THE LAWRENCE COUNTY BOARD OF COMMISSIONERS; that the Commissioners adopted and approve the Lawrence County Multimodal Corridor Study as an amendment to the Lawrence County Comprehensive Plan "Focus Lawrence County".

Adopted this 27th day of November, 2018

Vote: 3 YEAS 0 NAYS

Certified this 27th day of November, 2018

A handwritten signature in blue ink, appearing to read "James Gagliano, Jr.", is written over a horizontal line.

James Gagliano, Jr. Chief Clerk/County Administrator



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A corridor is...

a restricted tract of land that allows passage between two places.

A transportation corridor connects people and goods to a destination by one or more conveyance modes. Transportation corridors are combinations of roadway segments, with each segment meeting the definition of a respective roadway type. Typical corridors are highways that connect towns and villages to metropolitan centers.

With more pedestrians and bicycles occupying street systems, integrated transportation planning is now expected even if only as a means to protect those on foot and bicycle. Recently, the concept of Complete Streets has entered the transportation planning lexicon. Streets are now envisioned as public places and fundamentally multimodal, integrating street systems with activities of daily life.



http://www.dot7.state.pa.us/BPR_PDF_FILES/Documents/Research/Complete%20Projects/Operations/HCT.Task4Report161130final.pdf

Introduction


Corridors connect communities. Lawrence County has committed to improving connectivity by advancing projects that are aimed at expanding multimodal options. In 2016-2017, Lawrence County updated both its Comprehensive Plan and Greenways Plan, both of which identified Connecting Communities as one of the County's four areas of focus.

One of the main goals for Connecting Communities is to encourage a "complete streets approach to the design of roadways and corridors to make them safe for all users." Many of the major corridors in Lawrence County are used by a variety of users, including vehicles, trucks, public transit (buses), Amish buggies and cyclists. Conflicts arise at times between these users, particularly in northern Lawrence County, which is very rural (approximate population of 20,000) but is also home to 2,000 Amish residents, 1,300 college students as well as large industrial and agricultural operations.


As such, one of the high priority recommendations that came out of the plans was to undertake a multimodal study to identify ways to improve five main corridors in northern Lawrence County to accommodate all types of users.

These corridors are all state roads and fall under the purview of the Pennsylvania Department of Transportation (PennDOT). Local Metropolitan Planning Organizations (MPOs) are to identify and prioritize bicycle and pedestrian projects and/or corridors to which local funding is to be directed, and for PennDOT to consider, when making project and facility inclusion decisions.

As such, Lawrence County secured planning dollars from Southwestern Pennsylvania Commission's (SPC) Smart Program-Livability Through Smart Transportation funding to complete the study. While this process focuses on five major state roads in northern Lawrence County, the outcomes will allow these concepts to be applied in corridors throughout the County.



Transportation planning is in transition. Long-held beliefs and attitudes are being challenged, not only from the top but also by a different-thinking public less enamored by the automobile. Transportation planners are being challenged to think expansively and holistically. The problem is no longer how to squeeze in more traffic volume, but how to engage all parties with the task of **creating an infrastructure amenity that is diversely beneficial.** Citizens are demanding that transportation planning embrace the idea of "**complete communities,**" where streets and corridor systems contribute to the **healthy sustainability of neighborhoods.**



http://www.dot7.state.pa.us/BPR_PDF_FILES/Documents/Research/Complete%20Projects/Operations/HCT.Task4Report161130final.pdf

Process

Planning Framework

Focus: Lawrence County Comprehensive Plan Update was adopted in October 2016 and is organized around four main themes: Core Communities, Connecting Communities, Healthy Communities and Complete Communities. Keeping with this theme, the County adopted Experience: Lawrence County Greenways Plan Update in June 2017, which followed the same four core concepts.

The Multimodal Corridor Study implements the visions of all four core concepts, but most directly implements the vision established for Connecting Communities.

- Core Communities: many of these corridors connect the City of New Castle, New Wilmington Borough and Volant Borough. One of the priorities of this plan is to provide safer multimodal connections between these core communities.

- Healthy Communities: improving these corridors will allow them to become active transportation routes and alleviate congestion.
- Complete Communities: providing corridors that serve a variety of users will not only create complete streets, but complete communities.
- Connecting Communities: both plans recommend that the County improve its corridors as multimodal corridors, specifically to better accommodate the Amish and cyclists communities.

The planning process comprised three major phases. Phase 1 involved gathering, analyzing and mapping current and historical quantitative data for each of the corridors. Phase 2 consisted of identifying issues and conducting field views to document existing conditions.

Figure 1: Comprehensive Plan Four Themes



Both the 2016 Comprehensive Plan and the 2017 Greenways Plan followed four main themes.

Phase 3 consisted of devising recommendations to address the deficiencies, prioritize the corridors and improvements and prepare cost estimates for the recommendations.

Preliminary engineering and design was not completed as part of this study. In order for the County to proceed with corridor widening and/or bike lanes, preliminary engineering and design would be required.

Advisory Committee & Stakeholders

The County formed an Advisory Committee, comprised of representatives from PennDOT, SPC, Lawrence County, local municipalities, elected officials, Planning Commissions, Westminster College and the Amish community. The Advisory Committee's role was to help refine the study area; review the findings and recommendations; and prioritize the corridors for implementation.

The Advisory Committee also helped to help to identify stakeholders, subject-matter experts and those with a particular perspective or experience that should be reflected in the study. Stakeholders included representatives from local school districts, hospitals/healthcare providers, local and regional planning commissions, community development organizations, cycling clubs and local businesses.



Mackin's Traffic Engineer conducting a field view, consisting of measuring road widths, shoulders and sight distances.



Background

Lawrence County is comprised of 27 municipalities with a total population of 90,108 as of the 2010 Census and an estimated population of 87,069 in July 2017.

The Lawrence County Multimodal Corridor Study focuses on northern Lawrence County, specifically the major routes that connect the Core Communities of the City of New Castle with the Boroughs of New Wilmington and Volant. The study impacts corridors through six communities: Pulaski Township, Wilmington Township, New Wilmington Borough, Volant Borough, Neshannock Township and Hickory Township.

The study analyzes the major corridors in the northern portion of the County, which are heavily traveled by the Amish community (SR 158, SR 168, SR 208, SR 956, SR 1002 / Mercer Road and Mitchell Road). Maitland Lane was initially included but the Amish reported

that they rarely use it and Mitchell Road was added in its place.

The Old Order Amish sect in Lawrence County settled around 1847. Currently, there are approximately 2,000 Amish residents in 14 church districts surrounding the villages of New Wilmington, Volant and Pulaski. In the past few years, Amish-related tourism has increased and is actively promoted by Visit Lawrence County and other organizations.

During the Comprehensive Plan, interviews with members of the Amish community identified safety concerns with these corridors as they are often used to access SR 18 and shopping areas in Neshannock Township and the City of New Castle, as well as various employment centers and destinations in the northern part of the County.

Lawrence County has also been focusing on improving active transportation routes, specifically land and water trails. The Neshannock Creek Trail opened in 2015 and is a 0.7-mile rail-trail located in the City of New Castle along Neshannock Creek. The County is working with the City of New Castle to connect the trail to the City's Riverwalk, which is a linear park along Neshannock Creek. The City has added bike lanes to the North Street Bridge as part of ongoing efforts to implement the Riverwalk project.

Pennsylvania Bike Route "V" was designated in 2008 and is the State's newest Bike Route. Within the study area, it heads north out of New Castle and then along SR 1005 / Mercer Road through Neshannock Township and Wilmington Township, where it heads into Mercer County.

Community Profile

The study area corridors transverse the northern portion of Lawrence County, which is predominantly rural and agricultural in nature, but is home to many institutions, tourist attractions, large employers and other traffic generators including, but not limited to, the following (as shown on Figure 2):

Destinations / Employers

- Pulaski Flea Market
- Tri County Produce
- Dairy Farmers of America
- Cheese House
- Apple Castle
- New Wilmington Livestock
- Pine Hills Green House
- Byler's Grocery Store
- JB Mill & Fabricating (large Amish employer)

Institutions

- Westminster College
- Wilmington School District
- Neshannock School District
- Laurel School District

Commercial Areas

- New Wilmington Business District
- Volant Business District
- SR 18 commercial corridor in Neshannock Township
- New Castle Business District

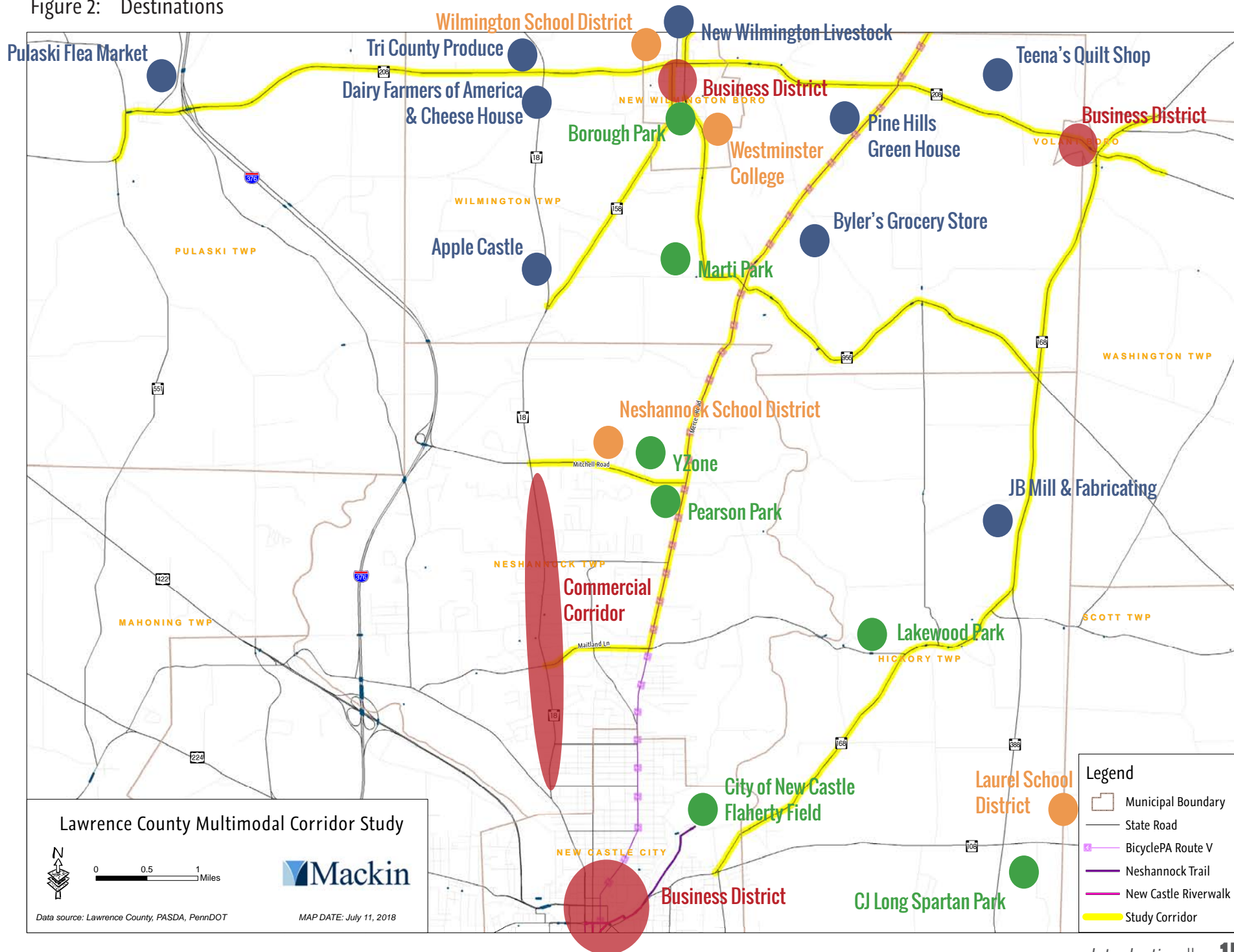
Parks and Recreation

- New Wilmington Borough Park
- Marti Park
- YZone

- Pearson Park
- Lakewood Park
- Flaherty Field
- CJ Long Spartan Park

Profiles of each of the six communities are included on pages 14-15.

Figure 2: Destinations



Hickory Township Profile



Land area: **15.9 mi²**



Population: **2,604**



Households: **1,009**, average size **2.6**



Median household income: **\$50,398**



Total Jobs: **588**

Hickory Township, a growing suburb of New Castle, with a total population gain of 248 (10.5%) and household growth of 9.1% since 2000. The Township offers a variety of amenities, such as local police protection and Spartan Park. The Township hosts the annual Lawrence County Fair.

The Township offers a wide range of land uses, from agricultural to various residential types, light industrial and mixed-use. It lies between New Castle's urban amenities and the attractions of Amish country to the north.

Neshannock Township Profile



Land area: **17.2 mi²**



Population: **9,397**



Households: **4,127**, average size **2.3**



Median household income: **\$64,281**



Total Jobs: **4,460**

Neshannock Township, a prosperous northern suburb of New Castle, is commonly regarded as one of the County's most desirable places to live.

The Township had a total population gain of 181 (2%) and household growth of 8.3% since 2000.

Key attractions within the Township include Pearson Park, the YZone, Hess Ice Rink and the New Castle Country Club. The Township's major routes include Route 18 (Wilmington Road) and nearby I-376.

New Wilmington Borough Profile



Land area: **1.1 mi²**



Population: **2,340**



Households: **550**, average size **2.2**



Median household income: **\$58,362**



Total Jobs: **1,329**

New Wilmington is a small historic community along the County's northern border, home to Westminster College, which has over 1,300 undergraduate and graduate students. The Borough is frequented by the Old Order Amish community based in surrounding Wilmington Township.

The Borough had a total population loss of 112 (-4.6%) and household loss of 4.7% since 2000. Much of its data is impacted by the student population, with 50% between the ages of 15 to 24. The Borough also has a large share of multi-unit rental housing that serves students.

Pulaski Township Profile



Land area: **30.9 mi²**



Population: **3,351**



Households: **1,391**, average size **2.4**



Median household income: **\$46,773**



Total Jobs: **359**

Pulaski Township, located in the County's northwestern corner, had a total population loss of 307 (-8.4%) since 2000. The Township is primarily rural, with population centers in the villages of New Bedford, Villa Maria, Frizzleburg, Pulaski and Nashua. The largest employers are in manufacturing.

The Shenango River and I-376 run through the Township's eastern side.

Volant Borough Profile



Land area: **0.1 mi²**



Population: **111**



Households: **52**, average size **2.1**



Median household income: **\$50,833**



Total Jobs: **71**

Volant represents one of the County's key cultural and tourism attractions, featuring more than 50 quaint shops and restaurants in an idyllic traditional village setting surrounded by Amish countryside. The majority of the jobs are in the retail trade.

The Borough is located along Neshannock Creek near the County's northern edge.

Volant's population level and household growth has remained steady since 2000.

Wilmington Township Profile



Land area: **20.0 mi²**



Population: **2,659**



Households: **947**, average size **2.8**



Median household income: **\$57,543**



Total Jobs: **554**

Wilmington Township is a relatively large expanse of primarily rural and agricultural space surrounding New Wilmington Borough along the County's northern edge. Part of the community's charm is its relatively large population of Old Order Amish residents. Neshannock Creek winds through the Township's eastern end.

The Township had a total population loss of 101 (-3.7%) but has maintained a steady number of households since 2000.

Local Economy

Jobs

Focus Lawrence County states that “The future of the County’s economic health relates clearly to the ability of the transportation system to meet the needs of existing and future employers and workers.” This holds true for pedestrians, bicyclists, and those in the Amish community.

Providing transportation amenities to those who use alternative forms of transportation will improve the local economy. Jobs are concentrated in a number of areas within the study area. As shown in Figure 3, outside of the City of New Castle, the largest employment clusters in northern Lawrence County can be found in New Wilmington Borough and in Neshannock Township, mostly along SR 18. However, there are several businesses found along SR 208 (i.e.

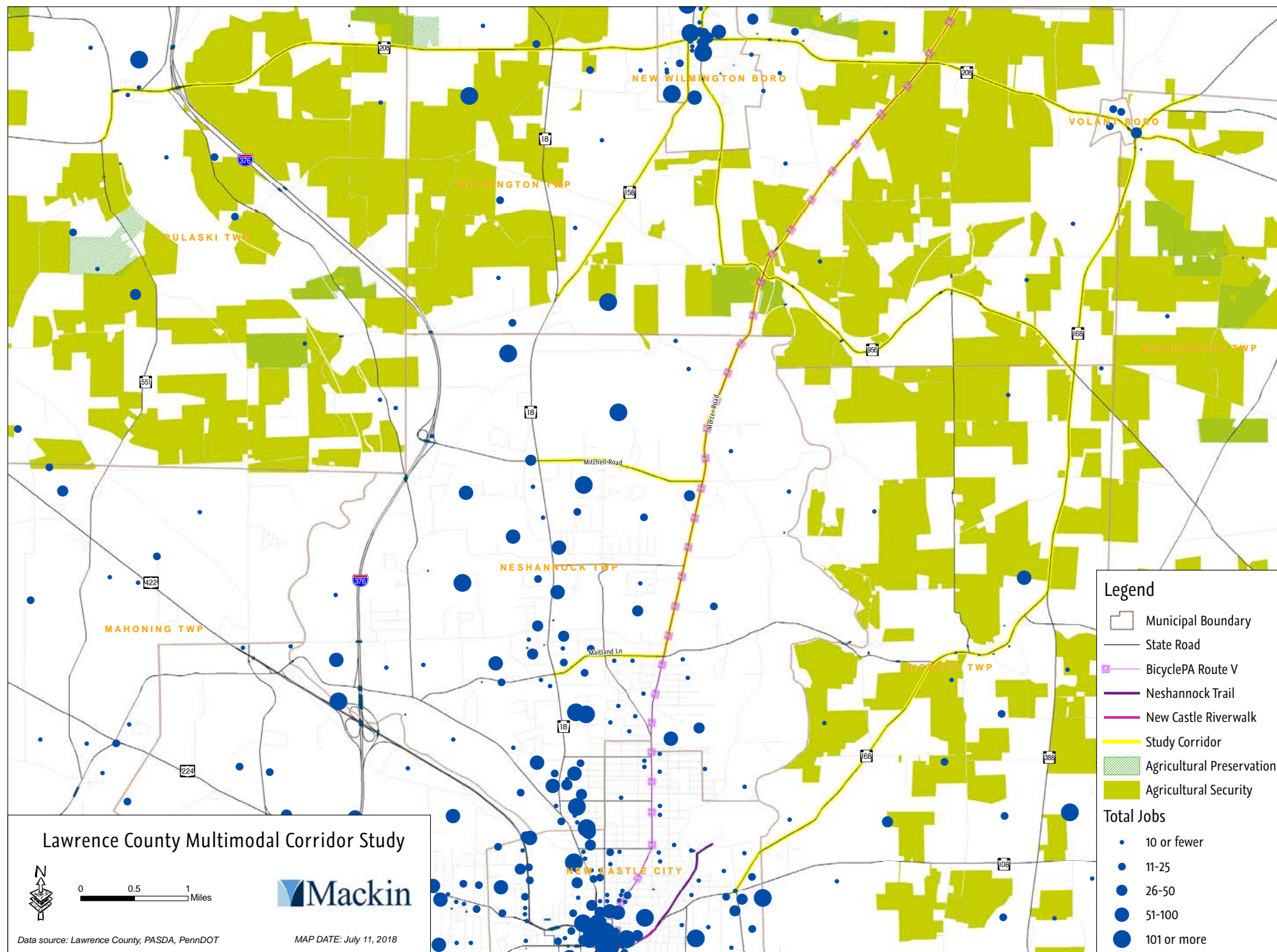
Dairy Farmers of America) and 168 (i.e. JB Mill & Fabricating) that employ more than 100 people and become major traffic generators.

Agriculture

As shown in Figure 3, much of the land in these communities is enrolled in the agricultural security program. The County has 37,010 acres enrolled in the Agricultural Security Area program and 22 farms are preserved under a conservation easement. Pulaski Township, Wilmington Township, Washington Township, Hickory Township, and Plain Grove Township account for the majority of the agricultural areas within the County. The preservation of these land uses are critical to the economic vitality of northern Lawrence County.

Agritourism is a growing industry in the County. Apple Castle is open year round with sweet cider, homemade donuts and other unique farm market items. Cheeseman Farm offers a Pumpkin Festival and Fright Farm, rental facilities for weddings and other special events and a campground. Agritourism can strengthen the economic viability of farms and the communities in which they are located.

Figure 3: Employment Centers and Agricultural Areas



Means of Transportation

The Geography of Work

Despite the large share of cross-county commuters, Lawrence County has the shortest average commute in the region at 22.8 minutes. The average commute was over 25 minutes in all other area counties, topping out at 28.9 minutes for Armstrong County residents. The statewide average is 26.5 minutes.

Lawrence County remains a car-centered county, with 84% of workers driving alone to work each day. New Castle Area Transit Authority provides public bus services within the County and to Pittsburgh, although only one route is offered for the New Wilmington / Volant area three days a week.

Commuting has a very real meaning for housing costs. The Center for Neighborhood Technology (CNT) expands the definition of housing costs to include transportation costs, which provides a more complete

understanding of the affordability of a given home in its location.

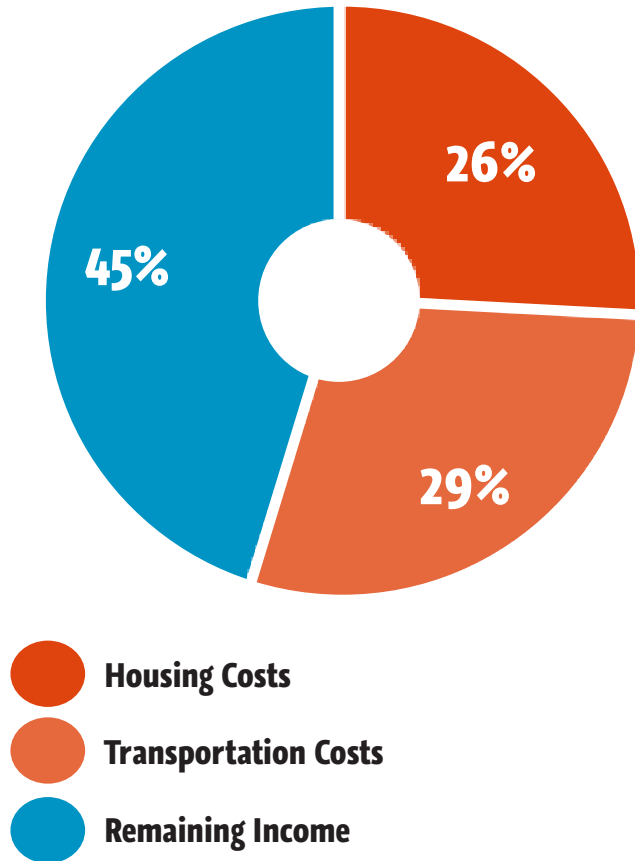
The average Lawrence County household spends 26% of its annual income on housing costs and 29% on transportation, with the remaining 45% available for other spending.

CNT reports that the average Lawrence County household owns 1.79 vehicles, which they use to travel an average 22,156 household vehicle miles each year. The average annual transportation cost of \$13,003 includes vehicle ownership costs (average \$9,725) and the cost of miles traveled (average \$3,271), as well as the average amount a County household spends on transit (\$7 —many spend zero, while a few spend substantially more).

Access

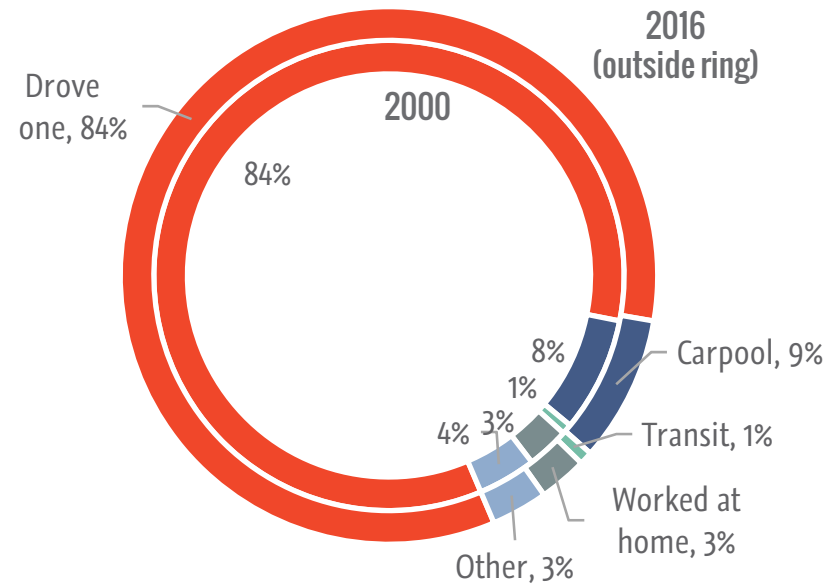
The study area has access to collector and arterial roadways. I-376 has interchanges in Pulaski and Neshannock Townships, providing connections to I-80, I-76, Pittsburgh International Airport and the City of Pittsburgh. SR 18 runs through Neshannock and Wilmington providing quick connections to the City of New Castle. PA bike Route V runs along Mercer Road making connections for bicyclists in Neshannock and Wilmington. The most accessible route for Amish buggy commutes is SR 18, giving the Amish community adequate access to New Castle, Neshannock and Wilmington.

The average Lawrence County resident spends **55% of their monthly income** on housing and transportation costs.



Average resident commute: **22.8 minutes**

Means of Travel to Work, 2000 and 2016



The way people travel to work **has not really changed** since 2000.



Average annual transportation costs: **\$13,003**

93.6% of County residents pay more than \$11,000 per year for transportation.

Natural Features

Physiographic Province

All of the study area is in the Northwestern Glaciated Plateau physiographic province. The province is defined by a gentle rolling topography smoothed by glacial action.

Floodplains

Floodplains are in almost every municipality within the study area, as shown in Figure 4. The Shenango River and Neshannock Creek are the main bodies of water flowing through these areas. In 2015, each municipality in Lawrence County was assigned a risk factor. Neshannock, New Wilmington, and Pulaski all had below average risk factors while Hickory, Volant and Wilmington were higher than average. The corridor most affected by flood risk is SR 956, which runs along the floodplain area of Neshannock Creek.

Steep Slopes

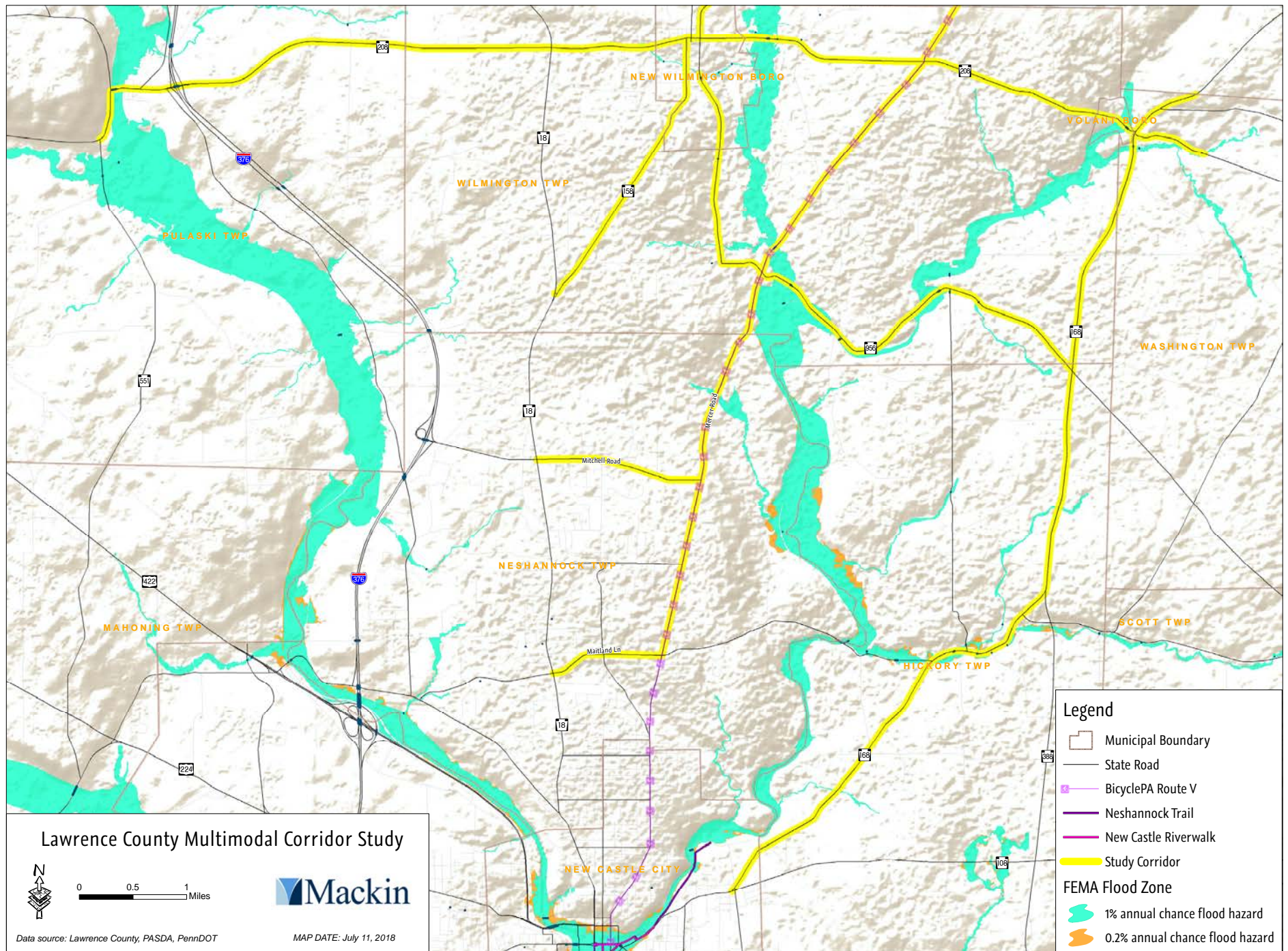
Building on properties with a slope of 25% or more can be difficult, which would make widening portions of these roadways equally difficult and costly. SR 208, SR 956, and SR 168 have segments with slopes of 25% or more.

Watersheds

There are three watersheds within the study area: the Shenango River Watershed, the Little Neshannock Creek Watershed, and the Neshannock Creek Watershed. The Little Neshannock Creek cuts through New Wilmington Boro and Wilmington Township. In Wilmington, the Little Neshannock Creek flows into the Neshannock Creek which flows into the Shenango River in New Castle.

The Shenango River is the only river that passes through the study area in Pulaski Township. Lawrence County has been actively creating river access sites and promoting its three rivers as water trails. The McQuiston Boat Launch is located off Nashua Road in Pulaski Township, just off SR 208.

Figure 4: Floodplain Map



Traffic

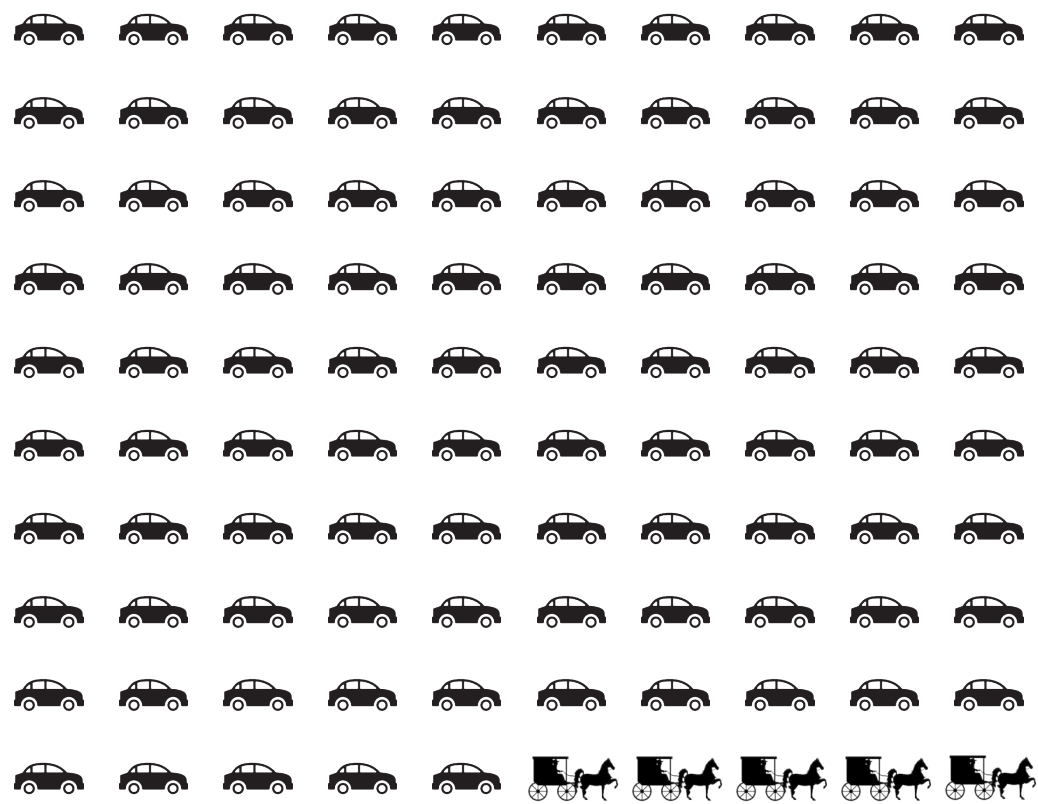
Congestion

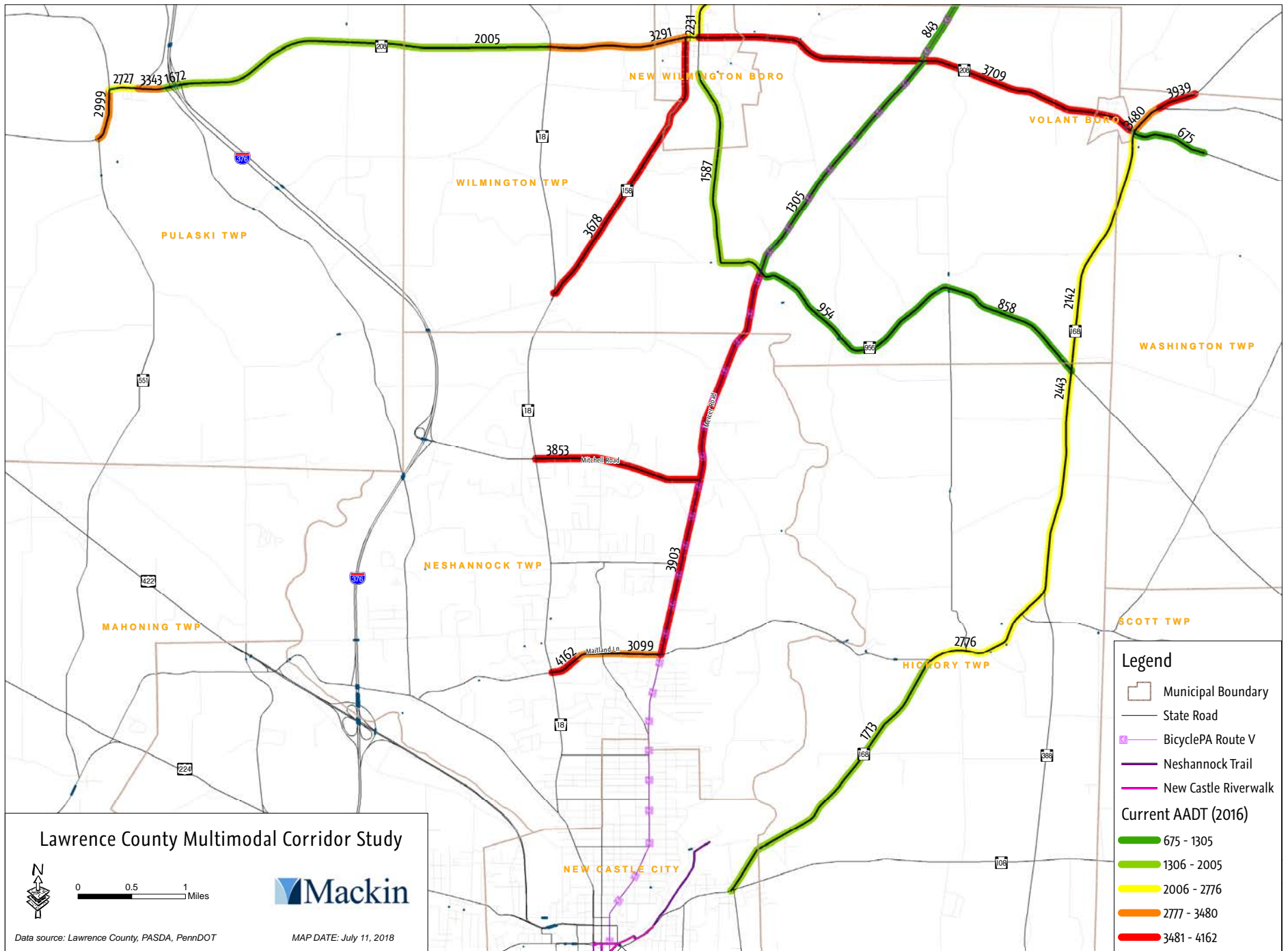
One of SPC’s Congestion Management Corridors (SR 18) runs through the study area. The portion of SR 18 that is in the study area runs from Oakwood Way to Mitchell Road. On this stretch of road, the travel time is typically higher than expected at all hours of the day with the highest southbound travel times occurring during the “lunch hour rush.” The highest northbound travel times occur between 4:00 and 8:00 PM. No other corridors in the study area have been identified as congested.

AADT

Understanding the Annual Average Daily Traffic (AADT) will provide an understanding of how many people drive on these corridors everyday. Since 2012, every road in the study area has had a reduction in AADT except for Mercer Road and SR 158. The reductions in AADT range from 5% to 65% with an average reduction of 11.25% between these roads. The roadways with the heaviest daily volumes are SR 208, Mercer Road, Mitchell Road and SR 158. Areas with lower traffic volumes would be preferable for travel by the Amish community. Five (5) out of every 100 vehicles on SR 956 is a horse-drawn buggy.

SR 956/Mercer Road Intersection - Traffic Counts





Crash Data

Looking at crash data can help reveal how safe a roadway is. The less crashes on a road, the safer the road is. Certain details of repetitive crash types may give insight to what causes a roadway to be more dangerous than another roadway. Crash data was collected from PennDOT for the most recent five-year period available, between 2012 and 2016.

SR 158

Angle crashes and fixed object crashes make up the majority of crashes on SR 158. The majority of crashes are concentrated in the southern portion of SR 158. There was one fatality involving a motorist hitting a fixed object. There was also a pedestrian accident involving an eastbound truck making a right turn.

SR 168

A little less than half of collisions on this road involve motorists veering off of the road and driving into a fixed object. These sorts of accidents are significant to pedestrians and Amish because they could also be hit by

a motorist veering off of the roadway. Most of the accidents occurred on the southern portion of SR 168 closer to New Castle or near the intersection of another roadway. Although there were no fatalities, pedestrians have been hit on this road.

SR 208

The majority of accidents on SR 208 were angle crashes. Angle crashes usually occur while one or more of the vehicles is making a turning movement. There was also a large number of hit fixed object crashes. The largest concentration of accidents are in and around New Wilmington Borough reflecting the higher traffic volumes on this portion of SR 208. There was one fatality involving a motorist speeding and using their phone, a pedestrian accident involving an eastbound truck making a left turn, and two buggy accidents.

SR 956

Overall, SR 956 has not seen many crashes. The highest concentration is at the intersection with Mercer Road, which

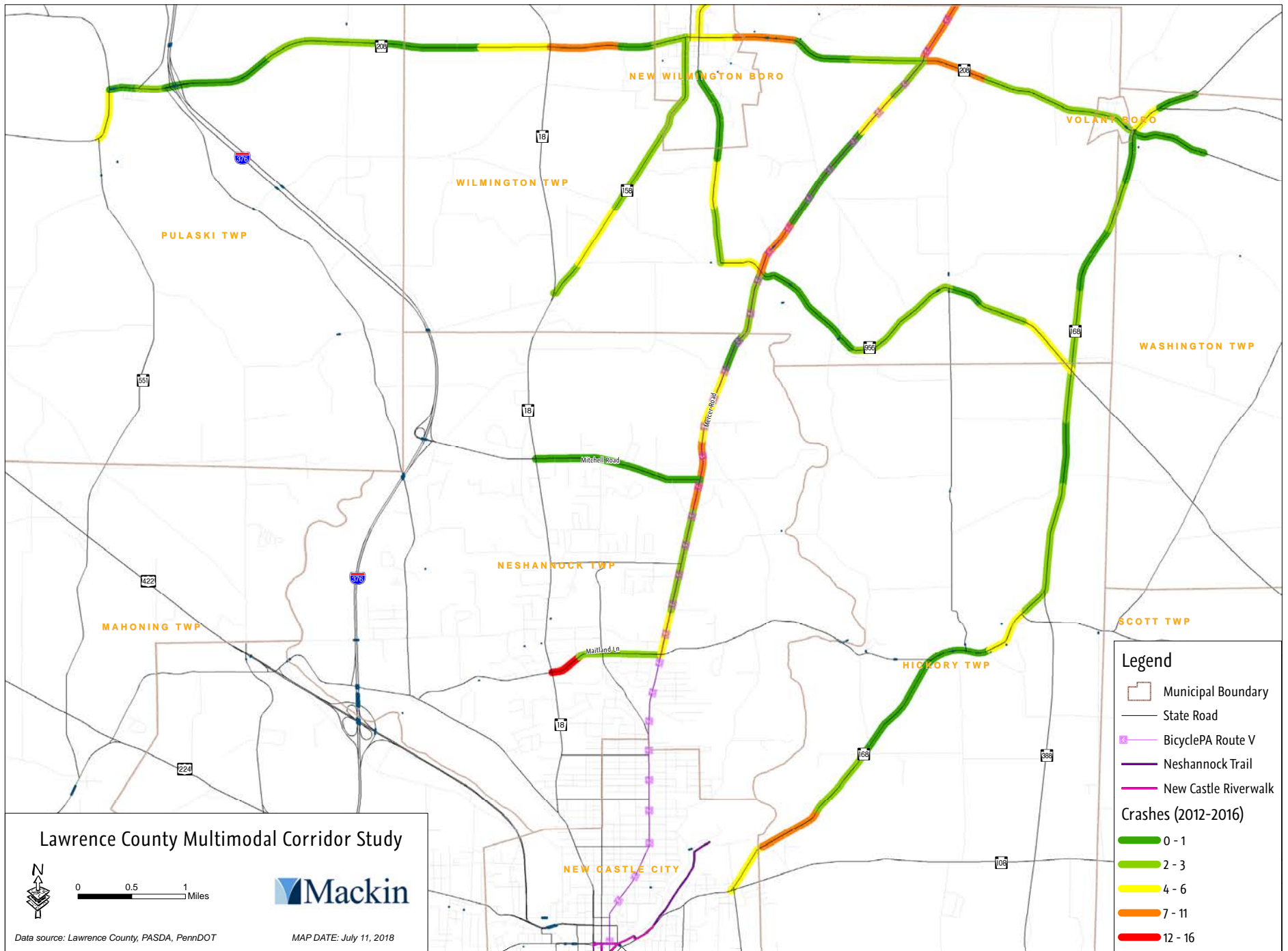
has been identified by the Committee and stakeholders as a dangerous intersection.

SR 1005 / Mercer Road

Once again, most of the accidents on Mercer Road are motorists striking fixed objects off of the roadway. Most collisions occurred at the intersections of Mercer and Mitchell, Mercer and SR 208, and Mercer and SR 956. There were no pedestrian accidents, fatalities, or buggy accidents on Mercer Road. Local authorities attribute accidents at Mitchell and Mercer to speeding vehicles and inadequate stopping distances when vehicles turn off of Mitchell Road.

Mitchell Road

Through PennDOT's Highway Transfer "Turnback" Program, the ownership of Mitchell Road between SR 18 and Mercer Road was transferred from PennDOT to Neshannock Township. The Neshannock Township Police reported the intersection of Mitchell Road and Mercer Road is the most dangerous intersection in the Township.





Corridor Profiles

Mackin Planners and Traffic Engineers conducted a series of field views during the course of the project to document existing conditions. Conditions documented include:

- Speed limits
- Road widths
- Shoulder widths
- Bridges / culverts
- Structures and/or other pinch points
- Utility poles (distance from shoulders)
- Transit routes / shelters

In late summer 2017, several members from the Steering Committee attended a field view with Mackin's planners and traffic engineers to view the corridors and identify issues along the way. The information is summarized on the following pages.

It should also be noted that PennDOT has a five-year resurface plan for Lawrence County. Three of the corridors in the study area are scheduled for resurfacing in the next five years: Mercer Road (2018), SR 956 (2022) and SR 208 (2022).

5 Yr. Resurface Improvement Plan

- **2018**
 - SR 1005 (Mercer Rd.) from Mitchell Rd. to Mercer County
 - SR 0288 (Wampum Rd.) from River Rd. to Oswald St.
- **2019**
 - SR 4004 (Pulaski Rd.) from SR 224 to SR 18
- **2020**
 - SR 0388 (Old State Rd.) from SR 0168 to SR 0422
- **2021**
 - SR 4005 (Old Pulaski Rd.) from SR 4004 to SR 0208
- **2022**
 - SR 0956 (South Market St.) from SR 1005 to SR 0208
 - SR 0208 (New Wilmington Rd.) from SR 1005 to Beagle Club Dr.



SR 208 Corridor



SR 208 Profile

Federal Functional Class: **Minor Arterial**

Roadway Mileage: **10.64 miles**

Municipalities: **Pulaski Township, Wilmington Township,
New Wilmington Borough, Volant Borough**

Arterial Connections: **I-376, US 422, SR 18**

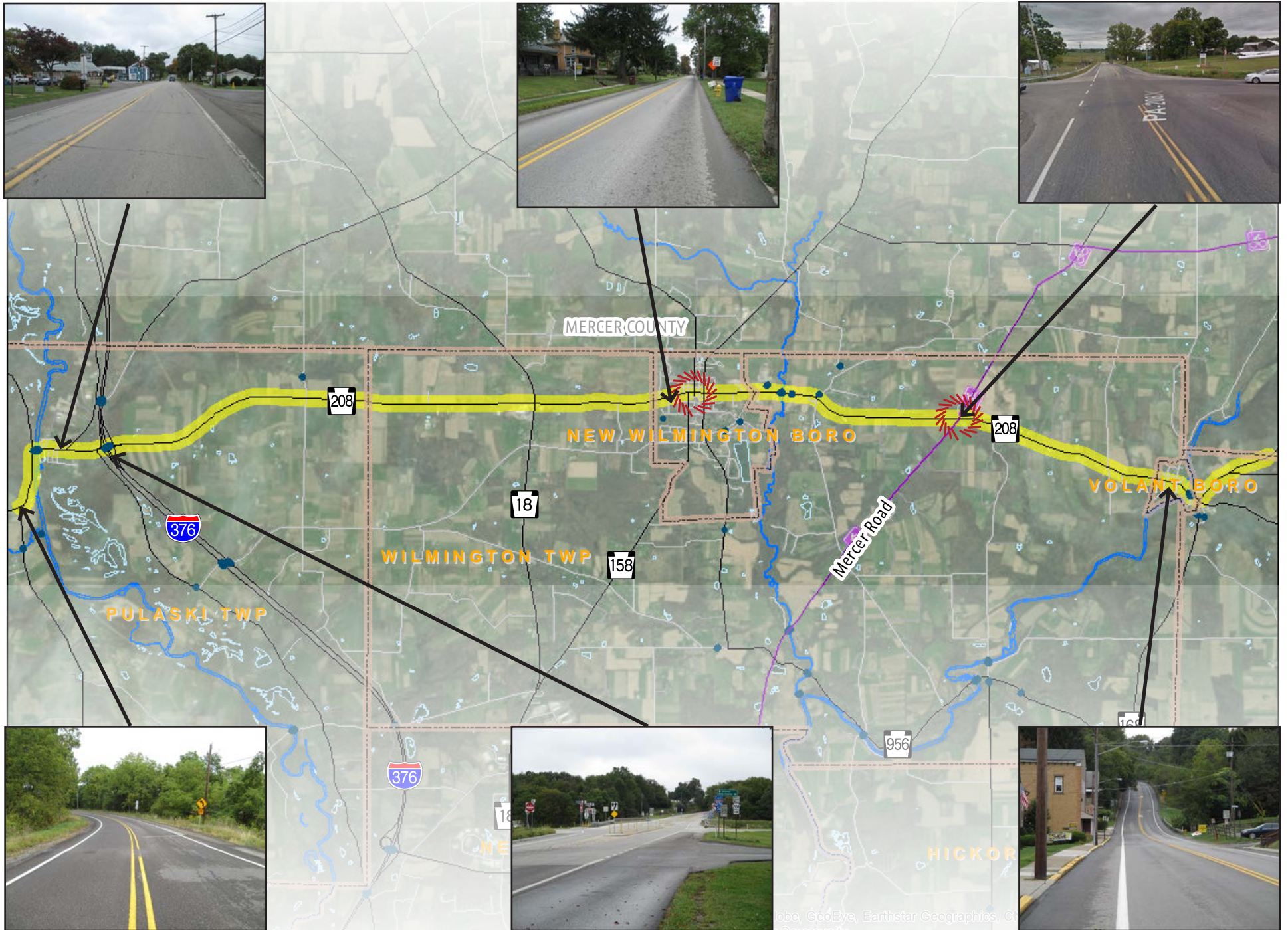
Description

Approximately ten miles long, SR 208 runs east-west across northern Lawrence County, beginning at US 422 at the western County border, through the village of Pulaski, New Wilmington Borough and Volant Borough, exiting the County to the north into Mercer County.

This two-lane road is fronted by mostly farm land and the occasional residential property, with the exception of within the Boroughs of New Wilmington and Volant. Major destinations accessed from 208 include the Pulaski Flea Market, Tri County Produce, Dairy Farmers of America, Cheese House and New Wilmington Livestock. Within the Boroughs, it serves as the business districts' main street in an urban setting with small businesses, homes, sidewalks and a speed limit of 25 MPH. The only traffic controls along the corridor are the two traffic signals in New Wilmington at the intersections with SR 158 and SR 956.

SR 208 provides connections to major north-south arteries including I-376, SR 18, SR 158, SR 956, SR 1005/Mercer Road and SR 168. SR 208 was last paved in 2014.

Minor Arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher Arterial counterparts and offer connectivity to the higher Arterial system. In rural settings, Minor Arterials should be identified and spaced at intervals consistent with population density, so that all developed areas are within a reasonable distance of a higher level Arterial. Additionally, Minor Arterials in rural areas are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement.



Potential Connections

- SR 208 was identified as part of the proposed Scenic Byway Bike Lane from the 2008 Lawrence County Greenways Plan. The 59-mile loop followed a proposed scenic byway through the rural countryside and Amish communities in northern Lawrence County.

Transit Routes

- The section from SR 18 east to the Mercer County border is part of the New Wilmington / Volant (Route 75) New Castle Area Transit Authority bus route. The route runs on Wednesdays and Thursdays. This route is also part of the Grove City Outlets route that runs on Saturdays.
- Transit shelters are found in New Wilmington and Volant. No issues or concerns with the transit routes were identified.

Field View Findings

- The widths of the shoulders vary along the 208 corridor. The Shenango River Bridge has two 11' lanes with 5' shoulders while the village of Pulaski has 4' shoulders eastbound and 9' shoulders westbound. The bridge over I-376 has 10' shoulders.
- Otherwise, the corridor throughout Pulaski Township and Wilmington Township has between 4' and 5.5' shoulders.

- Within the Boroughs of New Wilmington and Volant, there are sidewalks along both sides of SR 208. In New Wilmington, the paved cartway is 25' curb to curb, with a 6' grass strip between the roadway and the sidewalk; with the exception of between New Castle Street and Mercer Street, where the buildings are built to the sidewalks, which are immediately adjacent to the street. Volant has roughly 4' shoulders between the edge of the traveling lanes and the sidewalk.
- There are two traffic signals in New Wilmington Borough on SR 208 / Neshannock Avenue, at the intersections with SR 158 / New Castle Street and SR 956 / Mercer Street.
- The section between New Wilmington and Volant is the most heavily traveled section in terms of AADT
- The section west of Pulaski village is seldom used by the Amish.

Identified Issues

- The intersection of SR 208 and SR 1005 / Mercer Road intersection was identified by members on the Steering Committee, stakeholders and Amish community as a high priority concern.
- Cyclists noted the high traffic speeds and condition of the shoulders (despite it having been repaved recently).



Transit shelter along SR 208 in Volant. No issues or concerns were identified in the study area with public transit.



SR 168 Corridor

SR 168 Profile

Federal Functional Class: **Minor Arterial**

Roadway Mileage: **8.6 miles**

Municipalities: **City of New Castle, Hickory Township, Wilmington Township,
Washington Township, Volant Borough**

Arterial Connections: **SR 108, SR 208**

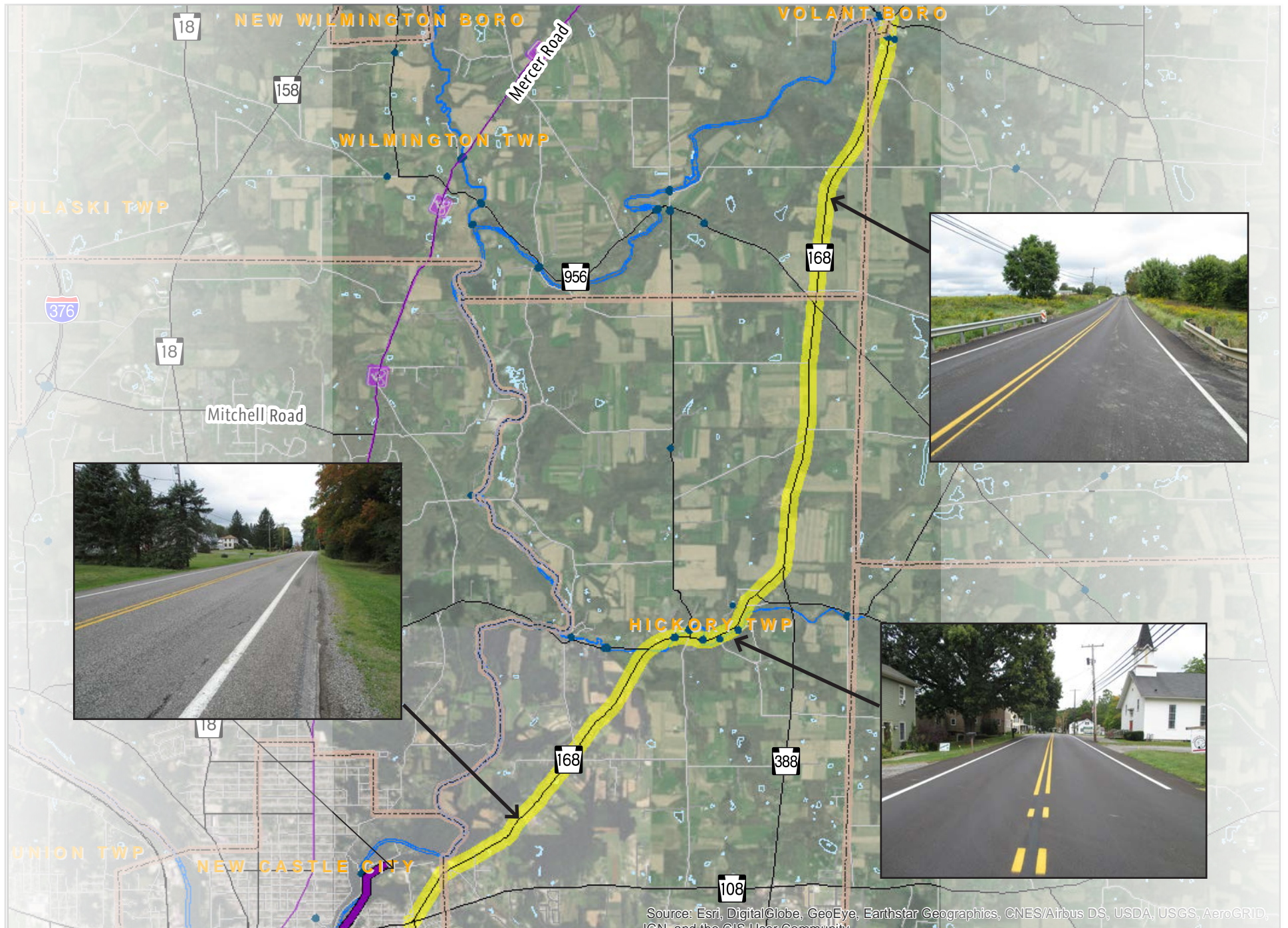
Description

SR 168 is a north-south minor arterial corridor that connects the City of New Castle to Volant Borough. Major destinations accessed via SR 168 include JB Mill & Fabricating and Lakewood Park. SR 168 is the main corridor through Hickory Township. Also fronted by an abundance of farm and rural housing, this is a rural road with no traffic signals or stop signs.

SR 168 provides connections from SR 208 to SR 108 to New Castle.

Minor Arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher Arterial counterparts and offer connectivity to the higher Arterial system. In rural settings, Minor Arterials should be identified and spaced at intervals consistent with population density, so that all developed areas are within a reasonable distance of a higher level Arterial. Additionally, Minor Arterials in rural areas are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement.

SR 168 was identified as part of the proposed Volant-Laurel Bike Route from the 2008 Lawrence County Greenways Plan. The 7.5 mile loop would connect the Laurel School District, the Lawrence County Fairgrounds and C.J. Long Spartan Park.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Potential Connections

- There is a possibility to connect to the Neshannock Trail via Dillworth Avenue (there is a small trailhead located here) and Paper Mill Road and Pearson Mill Road as shown below. Hickory Township supervisors reported that the southern portion of SR 168 in the village of Eastbrook is used by pedestrians and cyclists.

Transit Routes

- There are no transit routes along SR 168.

Field View Findings

- SR 168 was resurfaced in 2017, which included mill and resurfacing, shoulder repair, base repair, drainage and other miscellaneous construction.
- The majority of the corridor has 3' shoulders.
- The section north of SR 956 is heavily used by the Amish. There is a sawmill located along Route 168 that employs approximately 100 Amish.
- Within the village of Eastbrook, the shoulders are 4' southbound and 3' northbound. Utility

poles are located 5' off edge of pavement northbound. Although this section is seldom used by the Amish, there is pedestrian and bicyclist activity.

- Closer to SR 108, mailboxes are located 4' off edge of pavement.

Identified Issues

- There are several areas that experience drainage issues, particularly near the village of Eastbrook.
- Overall, there is a lack of warning signs for horse-drawn vehicles.





SR 158 Corridor

State Rte 158

SR 158 Profile

Federal Functional Class: **Rural Major Collector**

Roadway Mileage: **2.7 miles**

Municipalities: **Wilmington Township, New Wilmington Borough**

Arterial Connections: **SR 18, SR 208**

Description

SR 158 is a connector route from SR 18 to SR 208 in New Wilmington Borough. Wilmington Area School District is located just north of SR 158 in the Borough and New Wilmington Borough Park is located along SR 158 in the southern portion of the Borough. The typical speed limit along SR 158 is 45 MPH and it can be characterized as mostly rural residential.

Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Arterial network.

Rural Major Collectors provide service to any county seat not on an Arterial route, to the larger towns not directly served by the higher systems and to other traffic generators of equivalent intra-county importance such as consolidated schools, shipping points, county parks and important mining and agricultural areas; link these places with nearby larger towns and cities or with Arterial routes; and serve the most important intra-county travel corridors.



Potential Connections

- SR 158 connects SR 18, which has 8' shoulders and is heavily used by the Amish, to New Wilmington.
- This is a direct route between New Castle and Westminster College, and therefore, could be a route for cyclists.

Transit Routes

- There are no transit routes along SR 158.

Field View Findings

- This road shows signs of buggy use.
- The southern portion of this roadway is tar and chipped (between PA 18 and approximately the intersection with Johnston Road / Phillips School Road) while the northern section is paved.
- The majority of this corridor has 3' shoulders.
- Sidewalks begin on the east side of SR 158 / South New Castle Street, near The Grove at New Wilmington, a nursing home.

- Sidewalks are along both sides of the road beginning at Beechwood Road headed north.
- New Wilmington Borough Park encompasses the area between SR 158 and SR 956.
- The section that is tar and chipped has a 21' double travel lane and 30' to edge of pavement.

Identified Issues

- Apple Castle (near intersection of Route 18 and SR 158) is a major traffic generator, especially during Apple Fest.
- UPS along SR 18 (near SR 208 and SR 158) is a major traffic generator.
- Cyclists noted that SR 158 poses serious safety threats due to the high traffic volumes and lack of shoulders. They stated it is the most dangerous corridor in the study area and cyclists will ride out of their way to avoid it.

PA-956

SPEED
LIMIT
45

SR 956 Corridor

SR 956 Profile

Federal Functional Class: **Rural Major Collector (New Wilmington south to Mercer Road)**

Rural Minor Collector (Mercer Road to SR 168)

Roadway Mileage: **6.2 miles**

Municipalities: **Wilmington Township, New Wilmington Borough**

Arterial Connections: **SR 208, SR 168**

Description

SR 956 is a 6.2 mile stretch of roadway between SR 168 and SR 208 that connects New Wilmington, Wilmington Township and Hickory Township. There's a majority of housing and forest that line SR 956. The trees encroaching the roadway, bridges, and numerous curves help to calm traffic speeds.

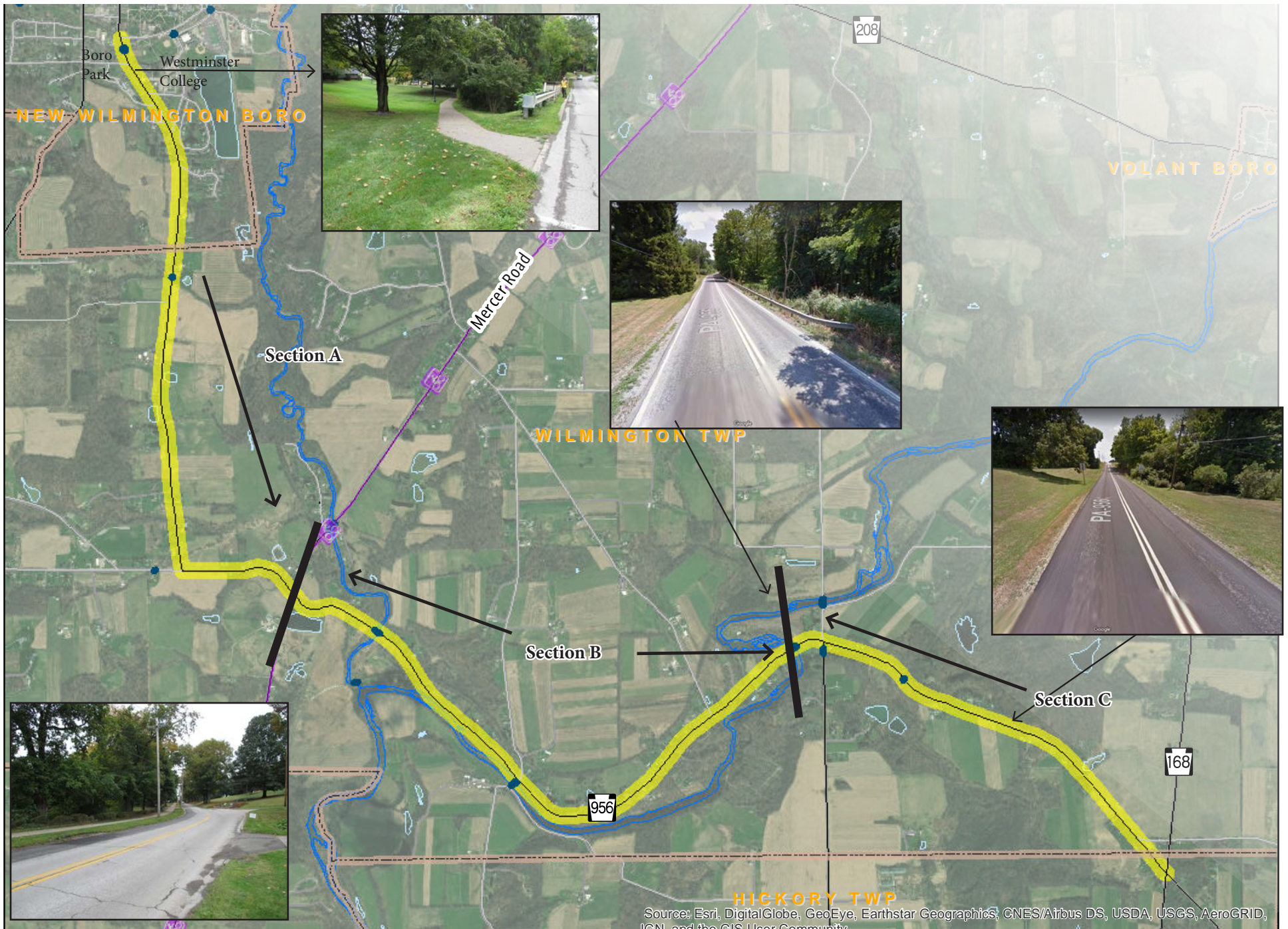
SR 956 provides connections between New Wilmington Borough, Mercer Road and SR 168.

New Wilmington-Neshannock Bike Route - a proposed 5.5 mile on-road bike route along State Route 956, Mercer Road and Mitchell Road. The route connects Neshannock Township School District facilities and Pearson Park with Marti Park in Wilmington Township and New Wilmington Borough. Portions of this route are utilized by the Lawrence County Cycling Club as part of their "Tour de La-Mec," an on-road cycling tour in Lawrence and Mercer Counties.

Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Arterial network.

Rural Major Collectors provide service to any county seat not on an Arterial route, to the larger towns not directly served by the higher systems and to other traffic generators of equivalent intra-county importance such as consolidated schools, shipping points, county parks and important mining and agricultural areas; link these places with nearby larger towns and cities or with Arterial routes; and serve the most important intra-county travel corridors.

Rural Minor Collectors are spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within reasonable distance of a Collector; provide service to smaller communities not served by a higher class facility; and link locally important traffic generators with their rural hinterlands.



Potential Connections

- SR 956 within New Wilmington is heavily used by residents, cyclists and students from Westminster College for running and cycling.

Transit Routes

- There are no transit routes along SR 956.

Field View Findings

- This road is used frequently by the Amish, but has no shoulder. This road is signed for horse-drawn vehicles.
- There are three (3) bridges along this road which are brand new, as part of the Pennsylvania Rapid Bridge Replacement Project.
- This road may be hard to widen because of the hillsides close to both sides of the road, especially in the area of Neshannock Creek, where numerous retaining walls would need to be constructed.
- There are no sidewalks connecting the Borough Park and trail on the west side of SR 956 / South Market Street until north of the Bridge at Orchard Street.

- Sidewalks begin on the east side of SR 956 / South Market Street at College Drive and on both sides of Market Street at Orchard Street.
- East of Neshannock Creek, the road shows signs of wear and tear from Amish buggies.

Identified Issues

- SR 956 is heavily used by the Amish (approximately 100 work at the saw mill on SR 168) and farm equipment. The lack of shoulders also poses a safety concern to cyclists, who use the section between New Wilmington and Mercer Road often.
- The middle section of this corridor presents the most challenges to the physical and financial feasibility of widening the roadway, due to hillsides alongside the road and Neshannock Creek.



SR 1005 / Mercer Road & Mitchell Road Corridor

SR 1005 / Mercer Road & Mitchell Road Profile

Federal Functional Class: **SR 1005/Mercer Road; rural major collector (Mitchell Road to SR 956); rural minor collector (SR 956-SR 208); local road (north of SR 208)**

Roadway Mileage: **5.1 miles (Mercer Road); 1.6 miles (Mitchell Road)**

Municipalities: **Wilmington Township, New Wilmington Borough**

Arterial Connections: **I-376 & SR 18 (Mitchell Road), SR 956/SR 208 (Mercer Road)**

Description

SR 1005 / Mercer Road runs north-south, connecting SR 208 to the City of New Castle. It is designated as PA Bicycle Route V.

Mitchell Road is a Township Road that connects SR 18 to Mercer Road in Neshannock Township and is home to several residential communities, Neshannock School District, the YZone and Pearson Park.

New Wilmington-Neshannock Bike Route - a proposed 5.5 mile on-road bike route 5.5 mile along State Route 956, Mercer Road and Mitchell Road. The route connects Neshannock Township School District facilities and Pearson Park with Marti Park in Wilmington Township and New Wilmington Borough. The portion of the route along Mitchell Road near Neshannock Township School District is an existing share-the-road bike route and portions of this route are utilized by the Lawrence County Cycling Club as part of their “Tour de La-Mec,” an on-road cycling tour in Lawrence and Mercer Counties.

Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Arterial network.

Rural Major Collectors provide service to any county seat not on an Arterial route, to the larger towns not directly served by the higher systems and to other traffic generators of equivalent intra-county importance such as consolidated schools, shipping points, county parks and important mining and agricultural areas; link these places with nearby larger towns and cities or with Arterial routes; and serve the most important intra-county travel corridors.

Rural Minor Collectors are spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within reasonable distance of a Collector; provide service to smaller communities not served by a higher class facility; and link locally important traffic generators with their rural hinterlands.



Potential Connections

- Mercer Road is designated as PA Bike Route V, but is poorly marked as such. In its current condition, it is not a very safe route for cyclists due to its lack of shoulders and rolling hills in the north. Consideration should be given to rerouting the PA Bike Route, at least until such a time that Mercer Road is improved. However, local cyclists stated that they prefer Mercer Road to SR 158 due to the lack of shoulders and condition of the corridor. SR 18 was noted to be dangerous north of Beechwood Road.
- Mitchell Road is an existing share-the-road bike route. Mitchell Road connects I-376 to SR 18 and then to Mercer Road. In addition, Neshannock School District, the YZone and Pearson Park are located on this corridor. There is also a fairly large-scale housing development located across from the park.

Transit Routes

- There are no transit routes along either Mercer Road or Mitchell Road.

Field View Findings

- Mercer Road, between the County line and SR 208 is used very often by the Amish, but has no shoulders. This section of road also has rutting and water drainage issues, but is planned to be repaved in 2019.
- Mercer Road, south of SR 208 is also used a lot by the Amish and only has a 1' shoulder.
- There are several blind curves and rolling hills on Mercer Road, which are safety issues for the Amish.
- The shoulders on Mercer Road south of Mitchell Road into New Castle have approximately 6' shoulders.

Identified Issues

- Sight distance and drainage issues (drainage from state routes flows onto Township roads).
- Speeding (enforcement).
- End of Mitchell Road has huge potholes and drainage issues that make it very dangerous.
- One of the most dangerous locations for Amish buggies in the county is along SR 1005 from Neshannock Township line to Wilmington Township line (speeding, pot holes, drainage, etc.).

- Bicycle safety is an issue – not safe along portions of this route, but it is still signed, which is a concern for visitors using it without knowledge of the issues.
- Law enforcement officials raised concerns about sight distance issues at the intersection of Mercer Road and Mitchell Road. Motorists attempting to make a turn from Mitchell Road or Sunset Valley Road onto Mercer Road have difficulty seeing past the vehicles traveling north and south. They reported that often times turning motorists check for vehicles, but don't see any. Officials state that vehicles approach the intersection before the people turning see them due to excessive speeding resulting in a collision. There have been multiple accidents of this nature at this intersection as shown in the crash reports provided by the Neshannock Police Department.



Corridor Improvements

While ideally, each of the corridors in the study area would be widened to provide 6-8' shoulders (similar to that along SR 18 in Neshannock Township) to improve safety for the Amish and cyclists, it is not financially feasible. As such, the Committee prioritized the corridors based on safety concerns for both the Amish community as well as the cycling community.



Example of 8' shoulders along SR 18 in Neshannock Township. Representatives of Amish and cycling communities cited this as a preferred design for corridor improvements.

Key Findings

SR 208

The sections of SR 208 in and near New Wilmington raise the most concerns. This area has the highest AADT and the largest number of crashes. The average speed limit on SR 208 is 45 MPH. There have also been reports of flooding near SR 18. Concerns have been expressed about traffic signals and turning radius issues at New Castle Street and Mercer Street. Amish reported that the shoulders were for the most part, adequate. Cyclists noted some concerns with the condition of the shoulders and high traffic volumes between New Wilmington and Volant. The major concern is the intersection of SR 208 and Mercer Road.

Priority Level: Low

SR 168

With the J.B. Sawmill in Hickory Township, there are many people riding Amish buggies to work between Volant and the sawmill. A large amount of pedestrians and bicyclists also use this road near the Eastbrook area. Despite the large buggy volume, there is insufficient signage to warn motorists of this activity. Compared to the rest of SR 168, the section with the mill and increased bike/ped activity has an average AADT and average rate of crashes. Speed limits on this roadway vary between 35 and 45 MPH. The recent pavings on this roadway raises the ease of travel for all users, which can result in higher vehicular speeds, but also allow those using the shoulders of the road to travel more easily.

Priority Level: Low

SR158

Unlike the other roadways in this study area, SR 158 does not show many signs buggy use. Because It's on a direct route between New Castle and Westminster College, any improvements should be aimed at increasing safety for bicycle usage. Crashes on this corridor were mostly concentrated on the southern end of the corridor. The higher AADT shows that this road is utilized by vehicles more than some of the other roadways in the area.

Priority Level: Medium

SR 956

SR 956 is used often by the Amish and is signed for buggy use, but has no shoulder. The average speed limit drops from 45 MPH to 25 traveling North into New Wilmington. AADT and crashes through this corridor are relatively low. Widening this road could be problematic because of the steep hillsides and floodplains in some sections; however, due to the high usage of the corridor by the Amish and lack of shoulders, the section of SR 956 between New Wilmington Borough and Mercer Road was ranked as a high priority by the Committee.

Priority Level: High

SR 1005 / Mercer Road

Mercer Road is heavily used by the Amish. As part of PA Bike Route V, cyclists would also be expected to use this road. Mercer Road is more dangerous to travel because there is little to no shoulder width until New Castle. Aggressive speeds, poor sight distance, and numerous blind curves and hills also contribute to the danger of the road. The average speed limit is 45 MPH. The AADT is also higher than some of the other corridors and has been increasing over the past five years. The Committee ranked Mercer Road the highest priority in terms of widening the shoulders for Amish and cyclist usage.

Priority Level: High

Mitchell Road

The AADT on this roadway is high; Mitchell Road provides access to I-376, SR 18 and Mercer Road. In addition, it is home to Neshannock School District (elementary school and junior/senior high school), Pearson Park, the Y-Zone and high density residential subdivisions. The Committee ranked Mitchell Road the highest priority in terms of pedestrian and cyclist improvements.

Priority Level: High

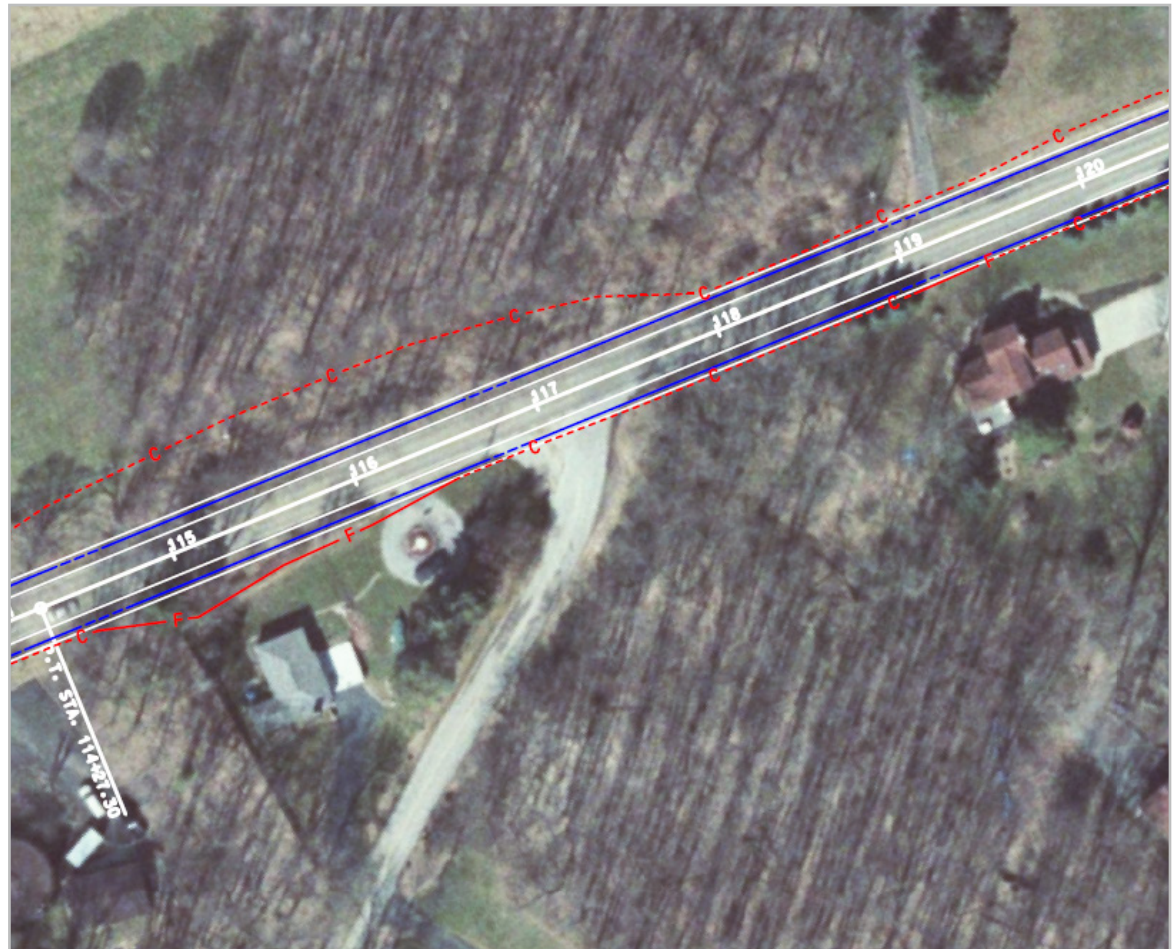


Corridor Cost Estimates

For the three corridors ranked as high priority, cost estimates were prepared to widen the corridors to accommodate either 6' or 8' shoulders, as shown in Figure 5.

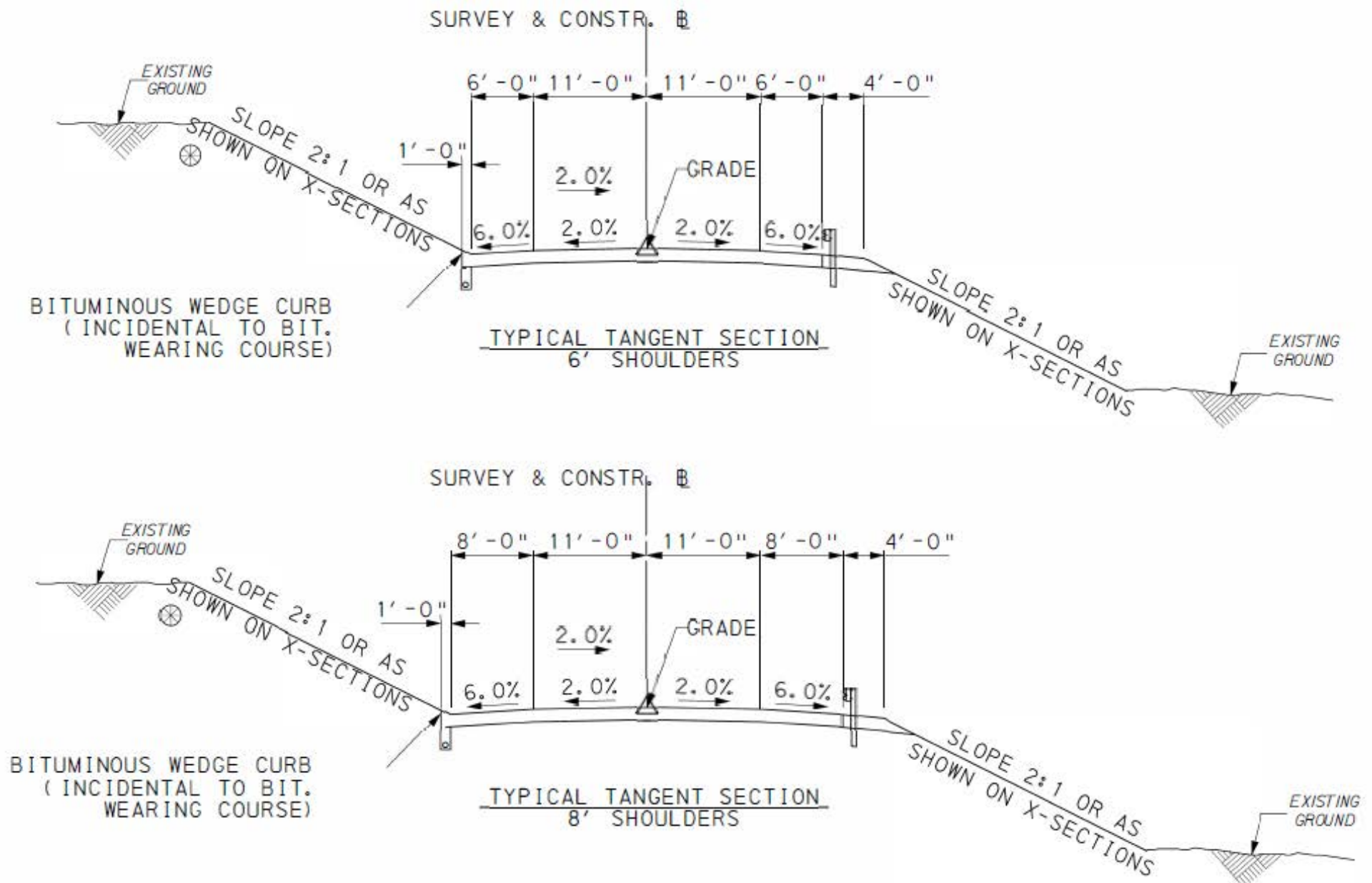
The engineering analysis utilized existing LiDAR and 2' contour data to determine the required earthwork (the amount of cut/fill needed to widen the roadway).

The cost estimates utilize assumptions based on percentages of roadway cost for drainage; erosion and sediment pollution control; signing and pavement markings; traffic control; and contingencies as well as percentages of construction cost for mobilization; construction inspection and management; and design. Estimates also include Right-of-way (ROW) impact (direct and additional 25% for constructability, erosion and sedimentation and drainage) and utilities. ROW plans for the corridors were collected from PennDOT.



Example of the engineering analysis for Mercer Road showing the existing ROW in blue and the cut/fill required outside of the ROW in red.

Figure 5: Typical Corridor Cross-Sections





SR 1005 / Mercer Road

Corridor Length: 5.1 miles
Total Cost: \$16.2 million

Preliminary engineering cost estimates for the Mercer Road Corridor (26,931 linear feet = 5.1 miles).

- The total cost is approximately \$14.1M for two 11' lanes and a 6' shoulder (34' pavement width) and \$16.2M for two 11' lanes and an 8' shoulder (38' pavement width).
- With an existing ROW of 33', both projects will require additional ROW. A ROW of between 40 and 45 feet will likely be required to accommodate either the 6' or 8' shoulders. As such, the estimates include ROW impact of approximately 5-8 acres for direct impact, with an additional 25% required for constructibility, erosion and sedimentation and drainage controls).
- Due to the significant cost, the project will likely have to be completed in sections. The funding for the resurfacing of Mercer Road in 2019 is coming out of the County Maintenance

Budget. Outside funding sources will be required for a widening project.

Priority Section 1: SR 956 to SR 208

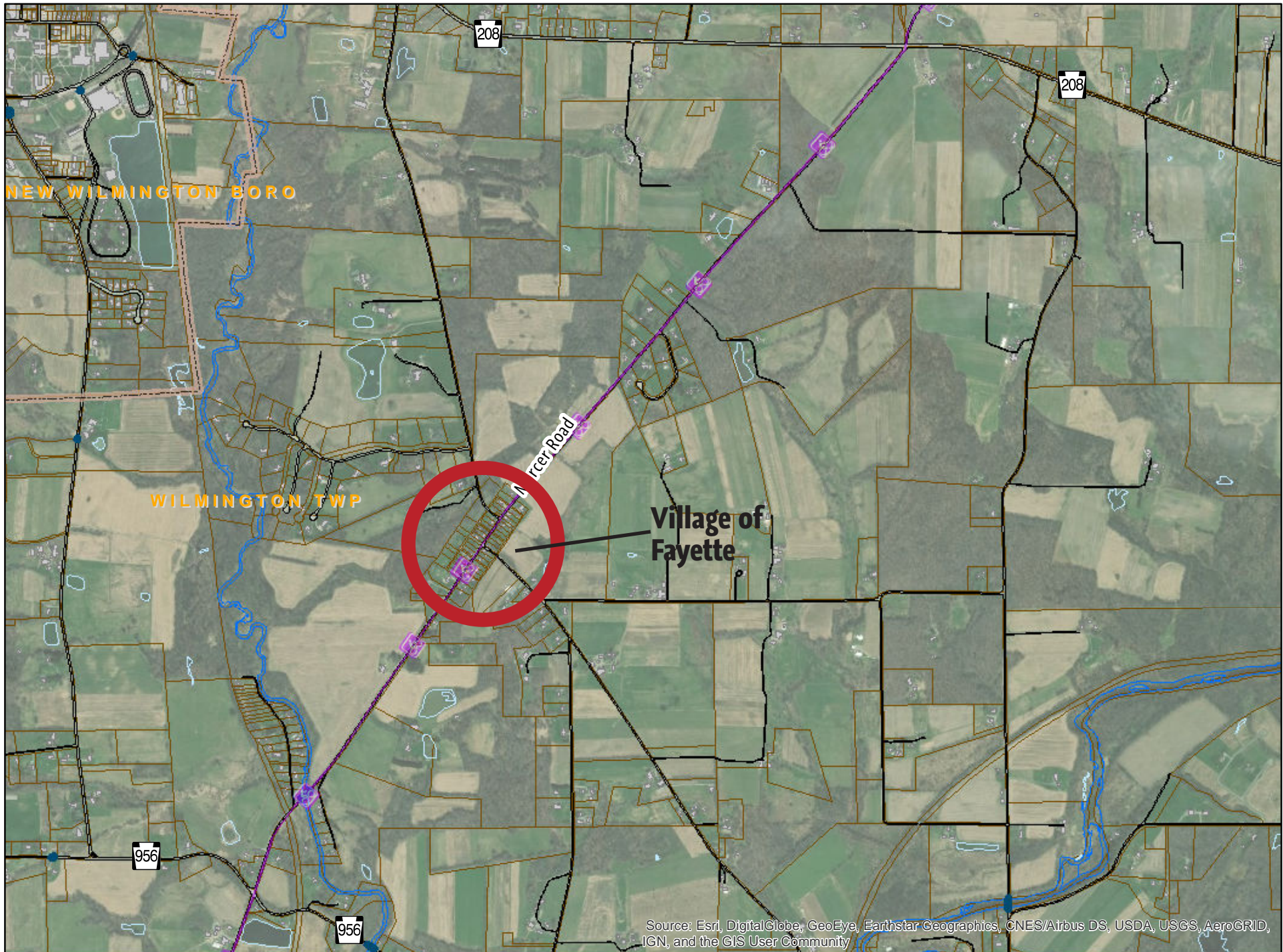
- This was chosen as the highest priority section by the Committee due to the amount of Amish traffic and existing conditions.
- 13,142 linear feet
- Costs = \$7.2M (6' shoulders) / \$8.3M (8' shoulders)
- In terms of ROW impact, there are 78 separate parcels in this section that would be impacted by the corridor widening. The largest concentration of property owners are located in the village of Fayette (near the intersection of Mercer Road and Fayette-New Wilmington Road / Fayette-Neshannock Falls Road).

Priority Section 2: Mitchell Road to SR 956

- 10,524 linear feet
- Costs = \$5.4M (6' shoulders) / \$6.1M (8' shoulders)
- The Committee noted that there are grading concerns in this section (there is a 7%+ grade northbound towards the SR 956 intersection). The County may want to consider future improvements for Mercer Road beyond widening the shoulders.

Priority Section 3: SR 208 to Mercer County Line

- 3,265 linear feet;
- Costs = \$1.6M (6' shoulders) / \$1.8M (8' shoulders)



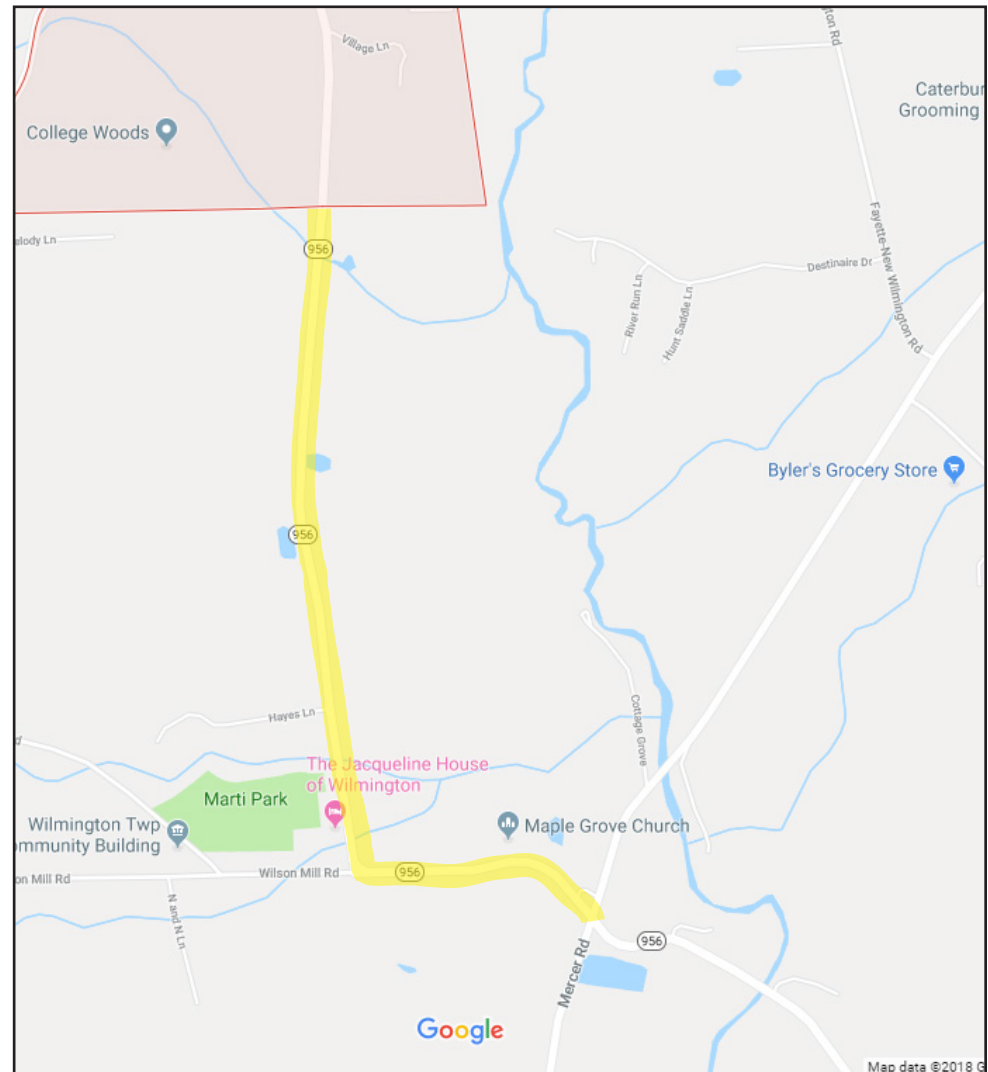


SR 956

Corridor Length: 1.5 miles
Total Cost: \$5.7 million

Preliminary engineering cost estimates for the SR 956 Corridor between Mercer Road and New Wilmington Borough (7,857 linear feet = 1.5 miles).

- The total cost is approximately \$4.9M for two 11' lanes and a 6' shoulder (34' pavement width) and \$5.7M for two 11' lanes and an 8' shoulder (38' pavement width).
- With an existing ROW of 33', both projects will require additional ROW. A ROW of between 40 and 45 feet will likely be required to accommodate either the 6' or 8' shoulders. As such, the estimates include ROW impact of approximately 1.8 – 2.7 acres for direct impact, with an additional 25% required for constructibility, erosion and sedimentation and drainage controls.





Mitchell Road

Corridor Length: 1.6 miles
Total Cost: \$4.3 million

Preliminary engineering cost estimates for the Mitchell Road Corridor (8,210 linear feet = 1.6 miles).

- The total cost for Mitchell Road between SR 18 and Mercer Road is approximately \$3.8M for two 11' lanes and a 6' shoulder (34' pavement width) and \$4.3M for two 11' lanes and an 8' shoulder (38' pavement width).
- With an existing ROW of 33', both projects will require additional ROW. A ROW of between 40 and 45 feet will likely be required to accommodate either the 6' or 8' shoulders. As such, the estimates include ROW impact of approximately 0.8 – 1.7 acres for direct impact, with an additional 25% required for constructibility, erosion and sedimentation and drainage controls.
- In terms of ROW impact, there are 81 separate parcels in this section that would be impacted by the corridor widening.
- After review and discussions, the Committee identified Mitchell Road as the highest priority overall for widening, primarily due to the high usage of this corridor by pedestrians and cyclists (Neshannock School District, Pearson Park, the Y-Zone and numerous residential communities along this corridor) in addition to the Amish. As such, a conceptual rendering was prepared to depict a corridor improvement for Mitchell Road that includes sidewalks, bicycle lanes and crosswalk, instead of widening the shoulders.
- The cost estimates for the bicycle and pedestrian improvements shown in Table 1 would be in addition to the cost estimates to widen Mitchell Road.

Mitchell Rd MM Recommendations

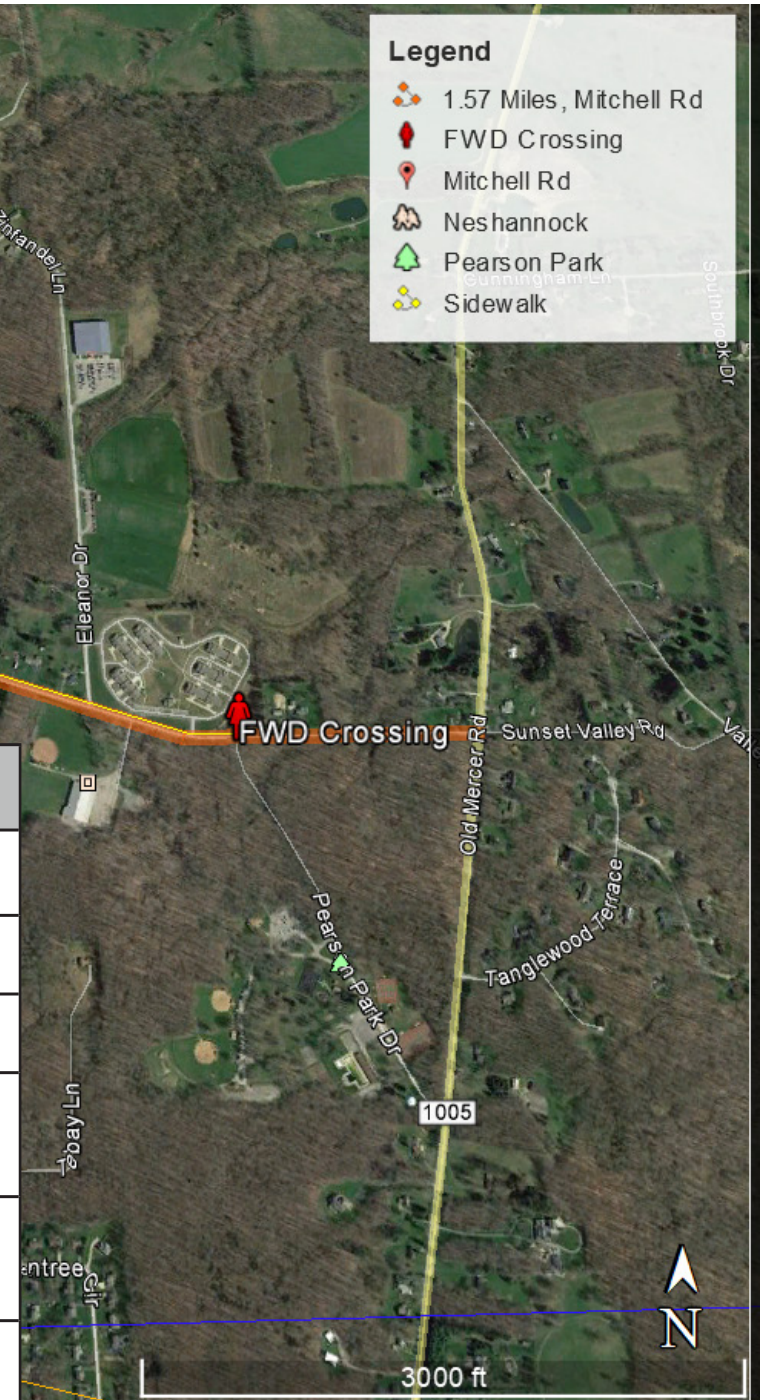
Sidewalk Along North Side
Widen EB and WB Shoulders for Bike Lane
2 FWD Crossings

Legend

- 1.57 Miles, Mitchell Rd
- FWD Crossing
- Mitchell Rd
- Nes hancock
- Pearson Park
- Sidewalk

Table 1: Mitchell Road Bicycle & Pedestrian Improvements

Item for Construction	Units	Unit Cost	Subtotal
Additional ROW (~8' along north side of road)	1.5 AC	\$40,000	\$60,000
Signs and pavement markings for bicycle lanes	1 LS	\$20,000	\$20,000
Flashing warning devices for pedestrian crossings - Pearson Park Drive - Plank Road	1 set	\$40,000	\$80,000
Concrete sidewalk (5' wide) - SR 18 to Pearson Park Drive (6,858 linear feet) - School Driveway to Plank Road (190 linear feet)	3,900 SY 105 SY	\$120 \$120	\$468,000 \$12,600
Additional Cost for Bicycle & Pedestrian Improvements			\$640,600



- NEW SHOULDER

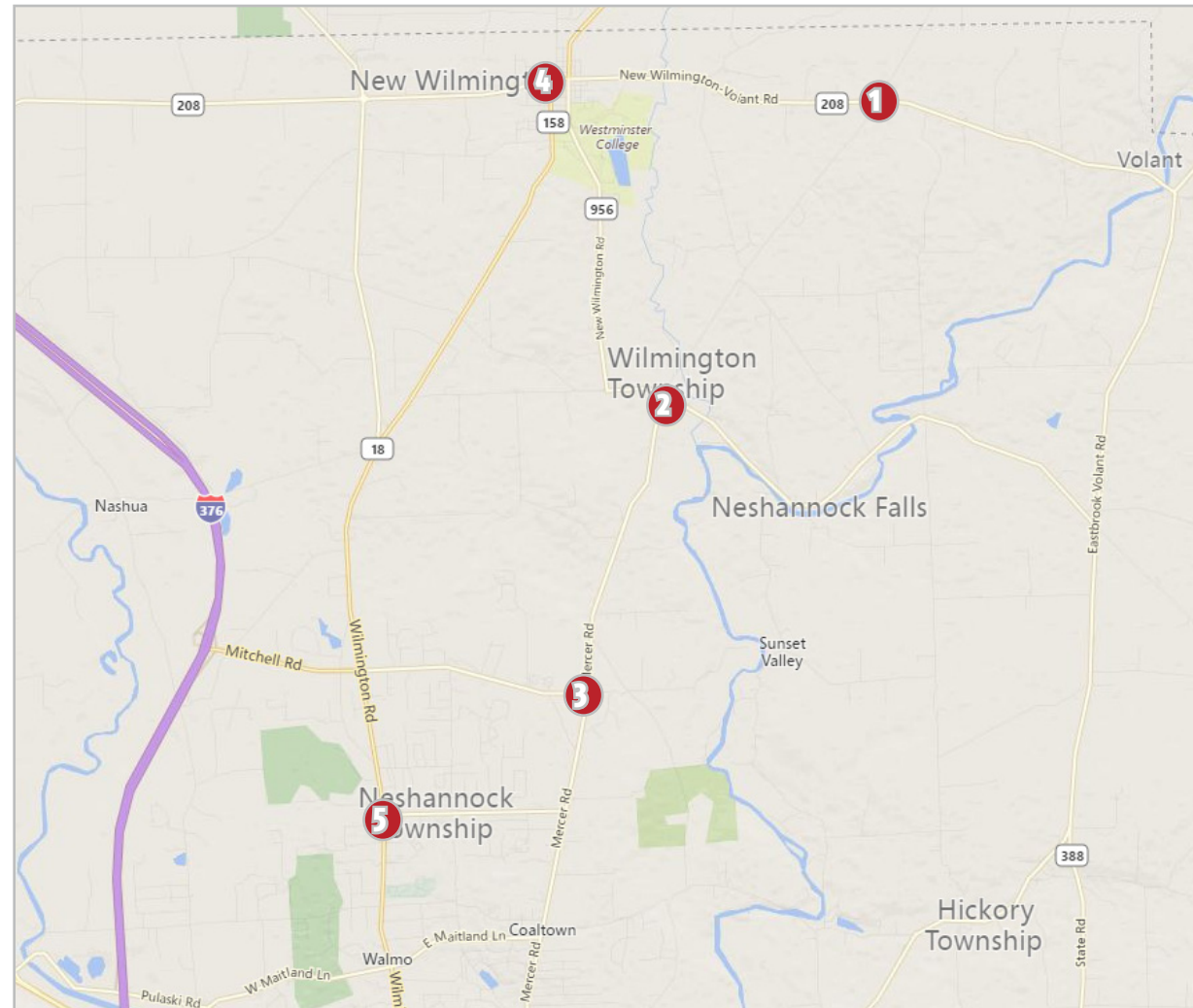




Intersection Improvements

As discussed under the Corridor Profiles earlier, a number of intersections along the corridors were identified as areas of concern. As such, Mackin's Traffic Engineers conducted field views of each intersection that was identified and prepared recommendations to address these concerns based upon existing and required sight distances and best engineering practices.

1. SR 1005 and SR 208
2. SR 1005 and SR 956
3. SR 1005 and Mitchell Road / Sunset Valley Road
4. SR 208 and SR 158
5. SR 1002 and SR 18



1



SR 1005 (Mercer Road) & SR 208

As part of the Lawrence County Multimodal Corridor Study, there was concern over the safety of the intersection of Mercer Road (SR 1005) and SR 0208 in Wilmington Township, particularly with the sight distances from Mercer Road and the high speeds on SR 0208.

Existing Conditions

The intersection is a four-leg plus intersection with stop signs located on the two Mercer Road approaches. SR 0208 does not have traffic control. All four legs are two lanes. SR 0208 is posted for 45 MPH while Mercer Road is posted for 40 MPH. SR 0208 eastbound approaches the intersection of Mercer Road at a -1% downgrade. SR 0208 westbound approaches the intersection of Mercer Road at a +2% upgrade.

On the eastbound approach there are two Speed Limit 45 MPH signs, a Cross Road sign, a School sign, a Horse-drawn Vehicle sign, a SLOW pavement marking and two '+' Cross Road intersection pavement markings. On the westbound approach there is a Cross Road sign, a School sign, a SLOW pavement marking and two '+' Cross Road intersection pavement markings.

Obviously, these were all installed in hopes of slowing vehicles on these approaches, and alerting motorists of the upcoming Mercer Road intersection.

Sight Distance Measurements

Corner sight distances were measured and compared to PennDOT requirements, as shown in Table 2 below.

Table 2: Sight Distance Measurements - Mercer Road & SR 208 Intersection

<i>Road</i>	<i>Direction</i>	<i>Required Sight Distance</i>	<i>Measured Sight Distance</i>
Mercer Road Northbound	Looking Left	390'	672' (+282')
Mercer Road Northbound	Looking Right	370'	720' (+350')
Mercer Road Southbound	Looking Left	370'	730' (+380')
Mercer Road Southbound	Looking Right	390'	662' (+272')



Mercer Road looking north towards SR 208



Mercer Road looking south towards SR 208



SR 208 looking east towards Mercer Road (no stop sign)



SR 208 looking west towards Mercer Road (no stop sign)

The measured corner sight distances were acceptable in all directions, assuming that vehicles were traveling the posted speed limit or slower. A problem could exist if vehicles are traveling faster than the posted speed limit of 45 MPH on SR 0208.

The obstruction looking left from Mercer Road northbound is the vertical crest. The obstruction looking right from Mercer Road northbound is also a vertical crest. Therefore, there is no easy fix if the sight distance were to be improved. Corner sight distance photos can be provided upon request.

Crash Analysis

Crash data was requested from PennDOT for this intersection for the past five years. There were eight reported crashes within the past five years. There is a distinctive trend as all eight crashes were angle crashes involving a vehicle pulling out from Mercer Road northbound. Six involved a vehicle on PA 0208 approaching from the left, while

the other two involved a vehicle on PA 0208 coming from the right. Three of the crashes involved minor injury, four property damage only and one unknown. Additionally, seven of the eight crashes occurred during the daytime, which could mean that the crashes occurred due to high speeds because at night the motorist could see headlights and make a better decision to proceed. A crash summary sheet can be provided upon request.

Traffic Volumes

Turning movement traffic counts were collected at this intersection on Wednesday, January 17, 2018 from 7:00 – 9:00 AM. The counts are used to determine if a traffic signal or multi-way stop control is warranted. The AM peak one hour was determined to be from 7:15 to 8:15. The traffic volumes at this intersection, during the morning peak are quite low, and appear to be too low to warrant a traffic signal or a multi-way stop controlled intersection.

Recommendations

Since the stopping sight distance is met, improving the sight distance for Mercer Road looking left is not necessary, and would be expensive having to lower the grade of SR 0208. Also, since additional measures like warning signing and pavement markings have already been installed and have not led to reduced crashes, it is recommended that an all-way stop controlled traffic control should be installed at the intersection of Mercer Road (SR 1005) and SR 0208.

If PennDOT does not agree that an all-way stop control is the answer, then an intersection control beacon should be installed.

Multi-Way Stop Warrant

According to the warrants provided in the Manual on Uniform Traffic Control Devices (MUTCD), the traffic volumes at this intersection do not warrant an all-way (multi-way) stop sign controlled intersection. However, the crash patterns indicate otherwise. One of the multi-way stop warrants is five crashes within a one-year period that are correctable by installing multi-way stop control. In 2015 and 2016, there were four crashes within a 365-day period, and five crashes within a 368-day period, nearly meeting the all-way stop warrant, only missing it by three days.

Intersection Control Beacon Warrant

If an all-way stop intersection is not accepted by PennDOT, then consideration should be given to installing an intersection control flashing beacon. However, it should be noted that this is a much more expensive option that may not result in slowing traffic and reducing crashes.

According to PennDOT Publication 46, the crash rate warrant for a flashing beacon requires four or more crashes of the right-angle or left-turn type within a one-year period. As stated above, in 2015 and 2016, there were four crashes within a 365-day period. Thus, this warrant is met.

2



SR 1005 (Mercer Road) & SR 956

Existing Conditions

The intersection is a four-leg plus intersection with stop signs located on three of the four approaches, Mercer Road southbound and both SR 0956 approaches. All four legs are two lanes. SR 0956 is posted for 45 MPH while Mercer Road is posted for 40 MPH. Mercer Road northbound, the approach with no stop sign, approaches the intersection of SR 0956 at a +7% upgrade.

Sight Distance Measurements

Corner sight distances were measured and compared to PennDOT requirements, as shown in Table 3 below.

The measured corner sight distances were acceptable in all directions, assuming that vehicles were traveling the posted speed limit or slower.

The obstruction looking left from SR 956 westbound is tree limbs, which would be filled with leaves in the summer season.

Crash Analysis

Crash data was requested from PennDOT for this intersection for the past five years. There were three reported crashes within the past five years.

Table 3: Sight Distance Measurements - Mercer Road & SR 956 Intersection

<i>Road</i>	<i>Direction</i>	<i>Required Sight Distance</i>	<i>Measured Sight Distance</i>
SR 956 Westbound	Looking Left	284'	618' (+334')
SR 956 Eastbound	Looking Right	284'	>1,000' (>716')
Mercer Road Southbound	Looking Straight Ahead	284'	>1,000' (>716')



Mercer Road looking north towards SR 956
(no stop sign)



Mercer Road looking south towards SR 956



SR 956 looking east towards Mercer Road



SR 956 looking west towards Mercer Road

There is a distinctive trend as all three crashes were angle crashes involving a vehicle traveling northbound on Mercer Road. Two involved a vehicle on SR 0956 approaching from the left, while the other crash involved a vehicle on SR 0956 coming from the right. One of the crashes involved minor injury and two property damage only. It should also be noted that two out of the three crashes involved motorists running through the stop signs. A crash summary sheet can be provided upon request.

Traffic Volumes

Turning movement traffic counts were collected at this intersection on Tuesday, January 16, 2018 from 7:15 – 9:00 AM. The counts are used to determine if a traffic signal or all-way stop control is warranted. The AM peak one hour was determined to be from 7:30 to 8:30. The traffic volumes at this intersection, during the morning peak are very low, and appear to be too low to warrant a traffic signal or a multi-way stop controlled intersection. Traffic count summaries can be provided upon request.

Recommendations

Although, neither the traffic volumes nor the number of crashes (five are required within a one-year period) warrant an all-way (multi-way) stop sign controlled intersection, consideration should be given to installing a stop sign on the Mercer Road northbound approach, making the intersection an all-way stop. Intersections in which three out of four legs having stop control are confusing to motorists. At a minimum, a supplemental sign should be added to the STOP sign on the Mercer Road southbound approach stating OPPOSING TRAFFIC DOES NOT STOP.

Mackin does not know the history of this intersection, and why stop signs were only installed on three out of four legs. The reason could be due to the steep (+7%) grade on Mercer Road northbound, in which vehicles could have a tough time getting moving in snowy or icy conditions.

If an all-way stop control is not installed, consideration should be given to installing an intersection control flashing beacon. This may help alert drivers better as to which approaches have a stop sign and which approaches are allowed to proceed without stopping.



SR 1005 (Mercer Road) & Mitchell Road/Sunset Valley Road

Existing Conditions

The 'plus' intersection is located in Neshannock Township, Lawrence County. The two eastbound (EB)-westbound (WB) side streets, Mitchell Road (EB) and Sunset Valley Road (WB) are stop controlled, while SR 1005 runs north-south with no control. All roads are two-lane roads, meaning one lane on each approach to the intersection. The speed limit on SR 1005 is 45 MPH. Both local roads have weight limits.

The Average Daily Traffic (ADT) of SR 1005 is 3,846 vehicles per day.

Sight Distance Measurements

Mackin also field-viewed the intersection to check existing sight distances, signing, pavement markings, etc. The corner sight distances from Mitchell Road and Sunset Valley Road are all greater than 1,000 feet.

Therefore, they are all acceptable, and no mitigation is recommended.

Crash Analysis

All crash data comes from PennDOT's CDART system, for SR 1005.

- There were eight crashes at the intersection in a five year period, between January 2012 and December 2017.
- The most crashes in any one year were four between June 2013 and May 2014.
- Seven out of eight of the crashes occurred in daylight so lighting does not appear to be a problem.
- One crash occurred in slush, one on a wet road, and the other six on a dry road.
- Six crashes were an angle accident, while one was an SUV running off of the road and hitting a fixed object and one was a motorcycle going too fast and falling over.
- Of the six angle accidents, four involved an eastbound vehicle with the other two a westbound vehicle.
- Of the six angle accidents, three involved a northbound vehicle with the other three a southbound vehicle.
- Therefore, there doesn't appear to be an obvious crash trend except that approximately once a year, a vehicle pulls out from a side street and gets hit by a vehicle on SR 1005.



Mercer Road looking north towards Mitchell Road / Sunset Valley Road



Mercer Road looking south towards Mitchell Road / Sunset Valley Road



Mitchell Road looking east towards Mercer Road



Sunset Valley Road looking east towards Mercer Road

Traffic Volumes

Mackin collected turning movement counts at the intersection between 7:00 and 9:00 AM on Thursday, June 14, 2018. The peak one hour is between 8:00 and 9:00 AM. The counts were used to check if an all-way stop condition or a traffic signal is warranted. Due to low traffic volumes, neither are warranted. Also, the crash warrants are not met as well. Five crashes in a one-year period are required. There were four recorded crashes in a one-year period.

Recommendations

There are currently CROSS ROAD signs (R2-1, 36" x 36") with ADVISORY SPEED PLAQUE signs (40 MPH, W13-1P, 18"x18") on the northbound and southbound approaches to the intersection, as well as "SLOW" and two "+" pavement markings on each approach.

These signs and pavement markings are good to alert approaching motorists on Mercer Road of the Mitchell Road/Sunset Valley intersection, which due to the sun lighting and crowded forest trees, can be difficult to see on the approaches. Mackin recommends the following:

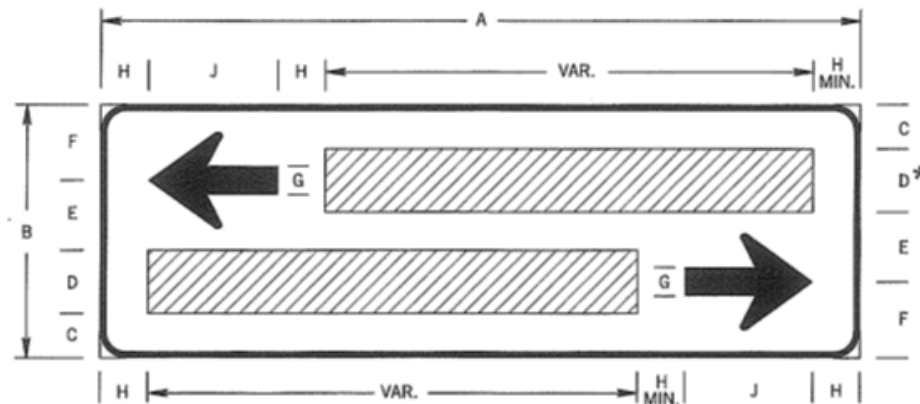
- Reinstall the "SLOW" and two "+" pavement markings on each Mercer Road approach, as they were heavily faded during the field view. Installation using hot thermoplastic or epoxy, opposed to waterborne paint, is recommended for longer durability. Another option is to investigate the use of methyl methacrylate (MMA). This material has been used recently in the City of Pittsburgh and may be less expensive than epoxy. MMA has been shown to provide a much longer service life than standard traffic paint and is now considered to be as durable as thermoplastics and tapes. MMA pavement markings are designed to be resistant to oils, antifreeze, and other common chemicals found on roadway surfaces.
- Investigate the possibility of installing a flashing beacon or use "engineering judgment" to request a 4-way stop sign (because of the steep grades leading to the intersection).
- Remove the existing CROSS ROAD signs (R2-1, 36" x 36") and replace with larger 48" x 48" signs. Install a new DOUBLE-LINE ADVANCE STREET NAME sign (W16-8AP, 72" x 24"), see next page for example, as well as a new larger 30" x 30" ADVISORY SPEED PLAQUE sign.
- Trim the pine trees along the northern side of Mitchell Road. They are currently blocking the second, left side, STOP sign on this approach.

W16-8AP

DOUBLE-LINE ADVANCE STREET NAME PLAQUE

The Double-Line Advance Street Name Plaque (W16-8AP) may be used beneath any intersection warning sign (W2 series) or advance traffic control sign (W3 series) to identify the name of the intersecting street when the street name to the left is different than the one to the right. The street names and associated arrows should be displayed in the following order:

- For a single intersection, the name of the street to the left should be displayed above the name of the street to the right; or
- For two sequential intersections, such as where the plaque is used with an Offset Side Roads Sign (W2-7L or W2-7R) or a Double Side Road Sign (W2-8), the name of the first street encountered should be displayed above the name of the second street encountered, and the arrow associated with the second street encountered should be an advance arrow.



NOTE:
SEE STANDARD ARROW FOR
DIMENSIONS OF ARROWHEAD.

DIMENSIONS - IN											
SIGN SIZE A x B	C	D*	E	F	G	H	J	K	BOR- DER	BLANK STD.	
48" x 16"	2.8	4	4.4	4.8	1.8	3	5.4	0.4	0.4	—	
72" x 24"	4.4	6	6.2	7.4	2.8	4	8.2	0.8	0.6	—	

* CHOOSE UPPER/LOWER CASE ClearviewHwy FONT FOR BEST FIT

COLOR:

ARROWS, LEGEND AND BORDER:
BLACK (NON-REFLECTORIZED)

BACKGROUND:
YELLOW (REFLECTORIZED)

APPROVED FOR THE SECRETARY OF TRANSPORTATION

By : De C Rowe Date : 02-29-12
Chief, Traffic Engineering and Permits Section
Bureau of Maintenance and Operations



SR 208 / SR 158 Intersection

Existing Conditions

The 'plus' intersection is located in New Wilmington Borough, Lawrence County. It is controlled by a two-phase traffic signal. All roads are two-lane roads with no turning lanes. The speed limits on SR 208 and SR 158 are both 25 MPH.

The intersection is located within the 'downtown business district' of New Wilmington and is a very tight intersection with small corner radius's. Being the intersection of two state routes, the intersection does have a fair amount of trucks and heavy vehicles, many making left and right turns between the state routes, the east, west and south legs.

Analysis

Mackin contacted Dave Harding, Lawrence County Maintenance Manager, to get a better understanding of the safety issues at this intersection. Dave stated that the main issue he was aware of was that some vehicles were stopping far past the stop bars and close to the intersection, making it difficult for large turning trucks. He stated that vehicles are creeping up on the northbound SR 158 approach, wishing to make a right turn on red. Trucks wishing to make a westbound left turn or eastbound right turn are having a difficult time making the turning movement with a car this close to the intersection.

Mackin reviewed the traffic signal permit and location of stop bars and STOP HERE ON RED signs, and all the stop bars and signs are set far enough back that trucks should be able to make the turning

movements if cars stopped where they were supposed to stop.

Recommendations

Mackin recommends the following:

- Reinstall the stop bar and crosswalk pavement markings, which were heavily faded during the field view. Use hot thermoplastic or epoxy, opposed to waterborne paint, for added durability.
- Install a NO TURN ON RED sign (R10-11, 24" x 30") for the northbound SR 158 approach. Install it overhead on the opposing mast arm #4, to the right of traffic signal head #6 (See the traffic signal permit). Slide the NESHANNOCK AVE STREET NAME sign to the right in order to fit the sign.



SR 158 / New Castle Street looking north towards SR 208 / Neshannock Avenue



SR 158 / New Castle Street looking south towards SR 208 / Neshannock Avenue



SR 208 / Neshannock Avenue looking east towards SR 158 / New Castle Street



SR 208 / Neshannock Avenue looking west towards SR 158 / New Castle Street



SR 1002 (Maitland Ln) & SR 18 Intersection

Existing Conditions

The 'plus' intersection is located in Neshannock Township, Lawrence County. It is controlled by a three-phase traffic signal. The southbound approach gets a protected/permissive advance phase. All roads are two-lane roads. There is a southbound left turn lane, northbound left turn lane and westbound right turn lane. The speed limit on SR 18 is 45 MPH. The speed limit on SR 1002 is 45 MPH on the west side and 35 MPH on the east side.

The Average Daily Traffic (ADT) of SR 18 is 14,662 vehicles per day with 5% trucks. The ADT of SR 1002 is 4,023 with 1% trucks.

Crash Analysis

All crash data comes from PennDOT's CDART system, for SR 1002.

- There were 12 crashes at the intersection in a five year period, between January 2013 and December 2017.
- The most crashes in any one year were six between September 2014 and June 2015.
- 11 out of 12 of the crashes occurred in daylight so lighting does not appear to be a problem.
- 11 out of 12 of the crashes occurred in dry conditions with one in wet conditions.
- Nine out of 12 crashes occurred in the autumn months, September, October and November.
- Seven crashes were an angle accident and the other five were rear-end accidents.
- Of the seven angle accidents, only one type occurred twice, a southbound vehicle going straight and hitting an eastbound vehicle going straight.
- Of the five rear-end accidents, two were southbound, two were westbound and one was northbound.
- Therefore, the crash trend appears to be right angle accidents and rear-end accidents, but no particular movement stands out as being dominant.



SR 0018 / Wilmington Road looking north towards
Maitland Lane



SR 0018 / Wilmington Road looking south towards
Maitland Lane



Maitland Lane looking east towards SR 0018 /
Wilmington Road



Maitland Lane looking west towards SR 0018 /
Wilmington Road

Recommendations

Mackin recommends the following:

- Mitigation for these types of crashes usually involves improving the visibility of the traffic signal heads and improving the traffic signal yellow and red timing. It should be noted that the traffic signals at this intersection did not have back plates in the past. Mackin contacted Dave Harding, Lawrence County Maintenance Manager and was told there was a betterment project on SR 18 between Grant Street and Mitchell Road recently, which led to traffic signal improvements at this intersection. A field view determined that back plates were added to all the traffic signal heads. Therefore, these traffic signal heads should be more visible and may lead to less crashes. It should also be assumed that the traffic signal timings were modified and improved with the betterment project. The crashes at this intersection should be monitored in the future.

- During the June 14, 2018 field view, Mackin observed that the pedestrian stub pole on the northwest corner was hit by a vehicle and was leaning back at a 20 degree angle, yet still functioning properly. Consideration should be given to relocating this stub pole back 1.5' and located behind the mast arm concrete platform so that it doesn't get hit again. A push button extension arm can be used to meet the MUTCD requirements.





Implementation Plan

As stated in the beginning of this study, the Lawrence County Multimodal Corridor Plan is an implementation of the County's Comprehensive Plan (2016) and Greenways Plan (2017). Both of those plans prioritized making the County's corridors safer for all users, including pedestrians, bicyclists and the Amish, in addition to motorists.

While this study provides cost estimates for corridor widening and recommendations to improve intersections, it should also be used to set policy. Both the Comprehensive Plan and Greenways Plan recommended that Lawrence County encourage their municipalities to adopt Complete Streets policies. Such a policy would promote the inclusion of bicycling, walking and buggies into the design of road and bridge projects. Each project would be evaluated individually to determine the most appropriate way to include all road users.

What are Complete Streets?

Complete Streets policies “formalize a community’s intent to plan, design and maintain streets so they are safe for all users of all ages and abilities.”¹ These policies can be implemented through updated ordinances and resolutions, inclusion into comprehensive plans and adopted policies by the governing body.

There is no singular design prescription for Complete Streets; each street is unique and responds to its community context. Streets that are planned and designed using a Complete Streets approach may include: sidewalks, bicycle facilities (such as bike lanes), bus lanes, accessible public transportation stops, frequent and safe crossing opportunities, median islands, accessible pedestrian signals and ramps, curb extensions, narrower travel lanes, roundabouts, multimodal bridges, and more.

A “complete” street in a rural area will look quite different from a “complete” street in a highly urban area, but both are designed to ensure safety and convenience for everyone.

According to Smart Growth America, there are ten elements of a comprehensive Complete Streets policy:

- Includes a vision for how and why the community wants to complete its streets.
- Specifies that ‘all users’ includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses and automobiles.
- Applies to both new and retrofit projects, including design, planning, maintenance and operations, for the entire right of way.
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.

¹ “Complete Streets.” Smart Growth America. <https://smartgrowthamerica.org/program/national-complete-streets-coalition/>. Retrieved online August 2018.

- Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
- Is adoptable by all agencies to cover all roads.
- Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
- Directs that Complete Streets solutions will complement the context of the community.
- Establishes performance standards with measurable outcomes.
- Includes specific next steps for implementation of the policy.

More information on Complete Streets and how municipalities can implement a Complete Streets policy can be found in the “Complete Streets Local Policy Workbook,” available online at www.smartgrowthamerica.org.



A complete street in a rural community can be as simple as providing wide shoulders to allow for safe bicycling, walking and Amish buggies.

Complete Streets in Rural Communities: Building Rural Environments for Active Living

Providing active transportation corridors are important not only to improve safety and offer alternative transportation routes, but also to improve community health. “Nearly one in five rural counties are experiencing worsening premature death rates in the past decade. In addition, rural children and adults have significantly higher rates of obesity than their urban counterparts. No single factor is responsible for the significant differences in health between rural and other types of counties, but evidence suggests that differences in environment play a role.”¹

With that in mind, it is crucial that rural communities consider active transportation opportunities when planning future roadway improvements. The recommendations in the Lawrence County Multimodal Corridor Plan are designed to equip Lawrence County and its municipalities with the tools to improve corridor design. There is no one-size fits all - as such, the recommendations include widened shoulders (6' to 8' depending on funding and land acquisition), bike lanes and/or sidewalks in more urban / densely populated areas and possible connections to the existing trail network within the County.



A Complete Street example in a rural community. Photo: Walkable and Livable Communities Institute, Dan Burden.

¹ Toliver, Zachary. “Building Rural Environments for Active Living.” *The Rural Monitor*. July 27, 2016. Retrieved online at <https://www.ruralhealthinfo.org/rural-monitor/built-environment-active-living/>. August 2018.

Lawrence County Multimodal Corridor Study Implementation Table

Cost Priority

#1: Consider corridor expansions and improvements to accommodate bicycles/ Amish buggies/ pedestrians into all future roadway planning efforts.

Encourage municipalities to adopt Complete Streets policies.

N/A

High

Encourage municipalities to incorporate the findings from the Multimodal Corridor Plan into future roadway improvement projects and bicycle/pedestrian connectivity projects.

N/A

High

Ensure that PennDOT incorporates the findings from the Multimodal Corridor Plan during planning and design for future roadway improvement projects.

N/A

High

Work with PennDOT to ensure that “share the road” signs for Amish buggies are installed on priority corridors.

Sign costs + staff
time

High

Continue conversations with the Amish community and bicycle community to monitor corridor improvements and needs.

Staff time

High

#2: As funding permits, expand the corridors to better accommodate bicycle and Amish buggy users.

SR 1005/Mercer Road - SR 956 to SR 208

\$8.3 M

High

SR 1005/Mercer Road - Mitchell Road to SR 956

\$6.1 M

Medium

SR 1005/Mercer Road - SR 208 to Mercer County Line

\$1.8 M

Medium

SR 956 - Mercer Road to New Wilmington Borough Line

\$5.7 M

High

Mitchell Road Corridor Widening

\$4.3 M

High

Mitchell Road - Bicycle & Pedestrian Improvements

\$640,600

High

Lawrence County Multimodal Corridor Study Implementation Table

	Cost	Priority
#3: Improve deficient intersections.		
Continue to monitor intersections annually to determine if the improvements have addressed the issues.	Staff time	High
SR 1005/Mercer Road & SR 208 Intersection - add stop signs on SR 208 heading east and west to Mercer Road intersection.	Sign costs + staff time	High
SR 1005/Mercer Road & SR 956 Intersection - add stop sign on Mercer Road heading north to SR 956 intersection.	Sign costs + staff time	High
Mercer Road / Mitchell Road / Sunset Valley Road Intersection - Reinstall the "SLOW" and two "+" pavement markings on each Mercer Road approach to Mitchell Road / Sunset Valley Road.	Pavement marking costs + staff time	High
Mercer Road / Mitchell Road / Sunset Valley Road Intersection - Remove the existing CROSS ROAD signs and replace with larger signs. Install a new DOUBLELINE ADVANCE STREET NAME sign as well as a new larger ADVISORY SPEED PLAQUE sign.	Sign costs + staff time	High
Mercer Road / Mitchell Road / Sunset Valley Road Intersection - Investigate the possibility of installing a flashing beacon or use "engineering judgment" to request a 4-way stop sign	Staff time	Medium
Mercer Road / Mitchell Road / Sunset Valley Road Intersection - Trim the pine trees along the northern side of Mitchell Road.	Staff time	High
SR 208 / SR 158 Intersection - Reinstall the stop bar and crosswalk pavement markings.	Pavement marking costs + staff time	High
SR 208 / SR 158 Intersection - Install a NO TURN ON RED sign for the northbound SR 158 approach. Install it overhead on the opposing mast arm #4, to the right of traffic signal head.	Sign costs + staff time	High
SR 1002 / Maitland Lane & SR 18 Intersection - relocate the stub pole back 1.5' behind the mast arm concrete platform.	Staff time	Low



Funding Sources

Community Traffic Safety Grant Program

Purpose: Grant applications must address critical safety needs based on analysis of crash data as the principal basis for programs. Data analysis and problem identification is the foundation for each project and will determine the structure and accuracy of the goals, activities, measures and evaluation efforts for the duration of the project period. Analysis might include multiple years of crash injury and fatality data; license, registration and conviction data; as well as demographic and other data from various sources. Data should be graphically represented to identify safety problems and support subsequent development of goals and activities. The application must clearly identify and define problems and relate this data to broad program area goals and specific countermeasures to be implemented.

Eligibility: Eligible applicants vary for each grant opportunity but generally include state and local governments, Pennsylvania State-related universities and Pennsylvania State System of Higher Education universities, and nonprofit organizations with existing IRS 501(c)(3) status.

These are cost-reimbursement grants. The grantee must pay 100 percent of all costs associated with the grant award. Reimbursement claims are submitted to PennDOT, reviewed for eligibility, and forwarded to the department's Comptroller's Office for payment. No payments in advance or in anticipation of goods or services will be made by PennDOT.

Website: <https://www.penndot.gov/TravelInPA/Safety/Pages/Safety-Grants.aspx>

Highway Safety Improvement Program(HSIP)

Purpose: The HSIP is a core Federal-aid program with the purpose of achieving a significant reduction in traffic fatalities and serious injuries on all public roads.

Eligibility: Eligible projects include either infrastructure or noninfrastructure projects. Projects should address a priority in the State's Strategic Highway Safety Plan; be identified through a data-driven process; target an identified safety problem; and contribute to a reduction in fatalities and serious injuries.

Website: <https://safety.fhwa.dot.gov/hsip/resources/fhwasa15011/>

Municipal Liquid Fuels Funding

Purpose: The Municipal and County Liquid Fuels programs fund a range of projects to support municipalities' and counties' construction, reconstruction, maintenance and repair of public roads or streets.

Eligibility: Eligible activities include construction, reconstruction, maintenance and repair of public roads/streets or bridges for which the county or municipality is legally responsible; culverts and drainage structures; acquisition, maintenance, repair, electrification and operation of traffic signs and traffic signal control systems at intersections; lane and crosswalk painting and marking; and curb ramps to provide access by individuals with disabilities in accordance with the current ADA and PennDOT standards, among others.

PennDOT Multimodal Transportation Fund

Purpose: The Program establishes dedicated funding for bicycle and pedestrian improvements, stabilizes funding for ports and rail freight, increases aviation investments, and allows targeted funding for priority investments in any mode of transportation. The program's goal is to improve transportation assets that enhance communities, pedestrian safety, and transit revitalization.

Eligibility: Local government or County; Councils of Governments; Businesses & non-profits; Economic Development Organization; Public Transportation Agency (including but not limited to an airport authority, public airport, port authority, or similar public entity); and, Rail and Freight Ports.

Local Match Requirement: 30% match of requested amount (State/Federal grants does not count as match).

Website: <http://www.penndot.gov/ProjectAndPrograms/MultimodalProgram/Pages/default.aspx>

PA Department of Community and Economic Development (DCED) Multimodal Transportation Fund

Purpose: Provides grants to encourage economic development and ensure that a safe and reliable system of transportation is available to Pennsylvania residents. The program is intended to provide financial assistance to improve transportation assets that enhance communities, pedestrian safety, and transit revitalization. The program is under the direction of the Commonwealth Financing Authority.

Eligibility: Local government or County; Councils of Governments; Businesses; Economic Development Organization; Public Transportation Agency (including but not limited to an airport authority, public airport,

port authority, or similar public entity); and, Rail and Freight Ports

Local Match Requirement: 30% match of requested amount (State/Federal grants does not count as match). Grants are available for projects with a total cost of \$100,000 or more. Grants shall not exceed \$3,000,000 for any project.

Website: <http://community.newpa.com/programs/multimodal-transportation-fund/>

PennDOT Pennsylvania Infrastructure Bank (PIB)

Purpose: A PennDOT program that provides low-interest loans to accelerate priority transportation projects, spur economic development and assist local governments with their transportation needs. Eligible uses include: Design, engineering, right-of-way, repair, and construction of public transportation facilities, highways, bridges and private airports, railroads, and rail freight facilities.

Eligibility: Municipalities; Counties; Transportation Authorities; Economic Development Agencies; Non-Profit Organizations; and Private Corporations

Website: <http://www.penndot.gov/ProjectAndPrograms/Planning/Pages/PA-Infrastructure-Bank.aspx>

PennDOT Transportation Alternatives Program (TAP)

Purpose: Moving Ahead for Progress in the 21st Century (MAP-21) introduced fundamental changes to the administration of local programs, including those that previously existed as separate programs in the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) legislation. Transportation Enhancements (TE), Safe Routes to School (SRTS), Scenic Byways (Byways) and the Recreational Trails Program (RTP) are now consolidated into the TAP.

Eligibility: The TAP provides funding for programs and projects defined as

transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation, trails that serve a transportation purpose, and safe routes to school projects.

Construction projects must have a construction cost of at least \$50,000, but may not exceed \$1 million, unless the project is of exceptional regional or statewide significance. Key criterion in the review of applications will be readiness for implementation and safety. Other criteria include, but are not limited to, consistency with local and regional plans, collaboration with stakeholders, statewide or regional significance, and the sponsor's demonstrated ability to successfully deliver the project.

Website: <https://www.penndot.gov/ProjectAndPrograms/Planning/Pages/Transportation-Alternatives-Program.aspx#.VyipUIQrKUK>

Southwestern Pennsylvania Commission (SPC) Livability Through Smart Transportation (SMART) Program

Purpose: SPC's SMART Program is intended to encourage sponsors to plan and implement strategies consistent with the policies of the region's Long-Range Transportation and Development Plan along with local and county comprehensive plans. A SMART project links transportation investments and land use planning to decision-making, creating transportation facilities that are safe, sustainable, responsive to the needs of all users and support community planning goals.

Eligibility: SMART proposals may only be submitted to SPC through County Planning Departments. Partnering entities such as municipalities, educational institutions and other public bodies are encouraged to collaborate with their respective planning departments to submit proposals.

Website: https://www.spcregion.org/transportation_smart.asp

Transportation Alternatives (TA) Set-Aside Program

Purpose: The TA Set-Aside Program provides funding for programs and projects defined as transportation alternatives, including on and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; safe routes to school projects; and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways.

Eligibility: Municipalities and school districts are among the eligible applicants.

Eligible projects include the construction of bicycle and pedestrian facilities and safe routes for non-driver projects and systems among others.

Website: https://www.spcregion.org/transportation_tap.asp

